

Georgia Strait Crossing Project

Final Supplemental Environmental Impact Statement

Prepared for:

Department of Ecology

Prepared by:

Shapiro and Associates, Inc.

January 19, 2004

TABLE OF CONTENTS

Page

FACT SHEET	i
1. SUMMARY	
1.1 Project Background.....	1-1
1.2 Proposed Action and Alternatives	1-4
1.3 Document Organization	1-4
1.4 Summary of Issues and Responses.....	1-6
1.5 Summary of Mitigation Measures	1-6
2. DESCRIPTION OF PROPOSAL AND ALTERNATIVES	
2.1 Introduction	2-1
2.2 Proposed GSX Pipeline (Issue 1: Updated Project Description).....	2-4
2.3 Terasen Gas Alternative (Issue 3: Canadian Project Alternatives)	2-9
2.4 No Action Alternative (Issue 3: Canadian Project Alternatives)	2-10
3. AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS, AND MITIGATION MEASURES	
3.1 Introduction	3-1
3.2 Geology and Soils	3-3
3.3 Surface Water.....	3-8
3.4 Groundwater.....	3-27
3.5 Plants and Animals.....	3-29
3.6 Reliability and Safety.....	3-57
3.7 Land and Shoreline Use.....	3-64
3.8 Socioeconomic Conditions	3-91
3.9 Cultural and Historic Resources	3-94
3.10 Traffic and Transportation	3-106
3.11 Air Quality.....	3-114
3.12 Noise.....	3-120
4. RESPONSES TO DRAFT SEIS COMMENTS	4-1
5. REFERENCES	5-1
6. ACRONYMS AND ABBREVIATIONS	6-1
7. DISTRIBUTION LIST	7-1
APPENDIX FERC ENVIRONMENTAL CONDITIONS	A-1

TABLE OF CONTENTS (continued)

Page

List of Tables

Table 1-1:	Summary of Issues and Responses.....	1-7
Table 3-1:	303(d) Stream Crossings.....	3-9
Table 3-2:	Agencies Contacted for Socioeconomic Data.....	3-92
Table 3-3:	Estimated Construction Workforce for the GSX Project.....	3-107
Table 3-4:	Anticipated Construction Worker Travel Routes	3-108
Table 3-5:	Major Roads Crossed by the GSX Project and Proposed Crossing Method	3-109

List of Figures

Figure 2-1:	Pipeline Route	2-5
Figure 2-2:	HDD Pipe String Launch Plan.....	2-8
Figure 2-3:	Terasen Gas System Proposal.....	2-11
Figure 2-4:	NorskeCanada Mill Sites	2-13
Figure 3-1:	Seismotectonic Map of Northwest Washington and Southwest British Columbia	3-4
Figure 3-2:	Compensatory Wetland Mitigation Site.....	3-45
Figure 3-3:	Compensatory Riparian Mitigation Site.....	3-46
Figure 3-4:	Forest Stands Subject to Fragmentation.....	3-53
Figure 3-5:	Cherry Point Wind Rose	3-115



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

January 20, 2004

Dear Reviewers and Interested Parties:

Re: Final Supplemental Environmental Impact Statement for the proposed
Georgia Strait Crossing natural gas pipeline project

The Washington Department of Ecology (Ecology) has completed the final supplemental environmental impact statement (FSEIS) for the Georgia Strait Crossing natural gas pipeline project. Georgia Strait Crossing Pipeline LP (GSX) is the proponent of the project.

GSX proposes to construct and operate approximately 47 miles of 20- and 16-inch-diameter pipeline (33.4 miles onshore, 13.9 miles offshore) in Whatcom and San Juan Counties, Washington for transporting natural gas. The project also includes construction and operation of the Sumas Interconnect Facility, which includes a receipt point meter station, pig launcher, interconnect piping, and mainline valve (MLV); and the Cherry Point Compressor Station, which includes a 10,302-horsepower compressor unit, pig launcher/receiver, MLV, and a tap valve. Four additional MLVs are required to be installed along the pipeline route. In addition to the tap valve at the Cherry Point Compressor Station, a second tap valve would be installed offshore. The proposed facilities would have an initial design capacity of 95,700 decatherms per day.

The FSEIS supplements the July 2002 environmental impact statement (EIS) prepared by the Federal Energy Regulatory Commission (FERC) and the U.S. Army Corps of Engineers (Corps) for the Georgia Strait Crossing Project. The EIS prepared by the FERC and the Corps addressed some, but not all of the probable significant adverse environmental impacts of the proposed project. Ecology will be adopting the EIS prepared by the FERC and the Corps and prepared the FSEIS to address the remaining probable significant environmental impacts of the proposed project.

Elements of the environment analyzed in the FSEIS include water quality and use, wetlands, wildlife and fisheries, and historic resources. Other issues analyzed include pipeline safety, seismic hazards, pipeline noise, and consistency with local plans and policies. On September 20, 2002, GSX was issued a Certificate of Public Convenience and Necessity (Certificate) from the FERC for the proposed route and associated facilities. Consequently, locations for the pipeline and associated facilities other than that authorized by the Certificate are not feasible and are not considered as alternatives.



Reviewers and Interested Parties

January 20, 2004

Page 2

As the lead agency for the implementation of the State Environmental Policy Act (SEPA), Ecology uses the FSEIS as an assessment tool for determining potential environmental impacts of pipeline siting, construction and operation, including spill response. Also evaluated in the FSEIS are cultural and historic considerations of the proposed route.

The document is available for viewing at local libraries, Ecology offices in Bellevue and Bellingham, Ecology's web site at www.ecy.wa.gov/programs/sea/gsx, and the proponent's web site, www.georgiastrait.twc.com.

For further information, or to obtain additional copies of this document, please contact **Tiffany Yelton** at **(425) 649-4310**. If you require this document in an alternative format, please call Tiffany, or 711, or 1-800-833-6388 (TTY).

Sincerely,



Raymond Hellwig

Regional Director

WA State Department of Ecology, NWRO

RH:sh:ll

Fact Sheet

FACT SHEET

Project Title

Georgia Strait Crossing Project

Proposed Action

The proposed action is the Georgia Strait Crossing (GSX) Pipeline. The U.S. portion of the pipeline is part of a larger project jointly sponsored by British Columbia Hydro and Power Authority (BC Hydro) and Williams Gas Pipeline Company. The project calls for the design, construction, and operation of two interconnecting natural gas pipelines, one in Canada and one in the U.S. The pipelines will transport natural gas from Sumas, Washington, to Vancouver Island, British Columbia.

The pipeline is a component of the proposed Vancouver Island Generation Project (VIGP), also proposed by BC Hydro, that would build a gas-fired power plant on Vancouver Island. The GSX pipeline would supply gas to the power plant. On September 8, 2003, the British Columbia Utilities Commission (BCUC) denied the VIGP application and recommended that BC Hydro proceed with a new analysis of alternatives to supply Vancouver Island's energy needs.

[In response to the BCUC ruling, BC Hydro issued a "Call For Tenders" \(CFT\) on October 31, 2003. Under that process, BC Hydro will accept and evaluate new proposals for energy generation and supply. An Independent Reviewer will evaluate the proposals and recommend a preferred option. At the time of publication of this Final Supplemental EIS, 23 bidders had registered. Some bidders are proposing new sources of power, whereas others would likely be interested in assuming control of VIGP's assets and completing a gas-fired plant similar to VIGP. This process is expected to be complete by the end of September 2004. Although the effects of this new Canadian process on the overall GSX pipeline are uncertain, it may result in delays in project permitting or construction.](#)

Alternatives

Terasen Gas Alternative – Under this alternative, Terasen Gas Vancouver Island (TGVI) would undertake phased expansion of its current natural gas distribution system that serves Vancouver Island. This includes construction of up to three new compression stations, pipeline looping of approximately 45.3 miles of existing pipeline, and construction of a liquid natural gas facility with a storage capacity of 1 billion standard cubic feet.

No Action Alternative – Under the No Action Alternative, the GSX pipeline would not be constructed. Without the pipeline, other projects may assist in reducing the demand for natural gas on Vancouver Island. An example is a proposal by Norske Skog Canada Limited (NorskeCanada). NorskeCanada has proposed installing new electrical power cogeneration facilities at three of its mills, combined with energy conservation and demand management practices.

Proponent Georgia Strait Crossing Pipeline LP (GSX-US)/BC Hydro

Lead Agency and Responsible Official Ray Hellwig, Regional Director
Northwest Regional Office
Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

Lead Agency Contact Person Sheila Hosner
Northwest Regional Office
Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452
(425) 649-4310

Permits and Approvals **Washington Department of Ecology**

Section 401 Water Quality Certification
Storm Water Discharge Permit
Point Source Discharge Permit
Coastal Zone Management Act consistency determination
State Clean Water Act (RCW 90.48)
Solid Waste Disposal
Coastal Zone Management Program
Permit to Appropriate Water
State Environmental Policy Act

Washington Department of Fish and Wildlife

Hydraulic Project Approval - freshwater and marine
State Aquatic Nuisance Species Act

Washington State Department of Transportation

Road crossing permits

Washington Department of Community, Trade, and Economic Development

Growth Management Act consistency
Implementation of Section 106, National Historic Preservation Act

Washington Department of Natural Resources

Aquatics Land Lease
Forest Practices Act compliance

Northwest Air Pollution Control Authority

Order of Approval Permit

Whatcom County

Conditional Use Permit
Shoreline Substantial Development Permit/Conditional Use Permits
Critical Areas Ordinance
Road Crossing Permits
Waste Management
Comprehensive Plan Amendment
Zoning Reclassification

San Juan County

Shoreline Substantial Development Permit

**Final Supplemental EIS
Authors and
Principal Contributors**

This ~~Draft~~-Final Supplemental EIS was prepared for the Washington Department of Ecology, the SEPA Lead Agency.

Shapiro and Associates, Inc. prepared the Draft and Final Supplemental EIS.

Shapiro and Associates, Inc.
101 Yesler Way, Suite 400
Seattle, WA 98104

~~Date Draft Supplemental EIS Issued~~ ~~September 24, 2003~~

~~Public Meetings on Draft Supplemental EIS~~ ~~October 14 and 15, 2003~~

~~Due Date for Comments on Draft Supplemental EIS~~ ~~October 25, 2003~~

Date Final Supplemental EIS Issued January 19, 2004

Location of Background Material Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

To Obtain a Copy of the Final Supplemental EIS Copies of the ~~Draft~~ Final Supplemental EIS are available for public review at the following locations:

Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Copies of the ~~Draft~~ Final Supplemental EIS can also be obtained by telephone at (425) 649-4310 or through mail orders. Please send your request to:

Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452
Attention: Sheila Hosner

Copies of the ~~Draft~~ Final Supplemental EIS also will be available on Ecology's and GSX-US's Web sites and at the following local libraries: Ferndale, Sumas, Lynden, and San Juan.

**DETERMINATION OF SIGNIFICANCE
AND ADOPTION OF EXISTING
ENVIRONMENTAL DOCUMENT**

Description of current proposal: Georgia Strait Crossing Project. The proposed action is the Georgia Strait Crossing (GSX) Pipeline. The U.S. portion of the pipeline is part of a larger project jointly sponsored by British Columbia Hydro and Power Authority (BC Hydro) and Williams Gas Pipeline Company. The project calls for the design, construction, and operation of two interconnecting natural gas pipelines, one in Canada and one in the U.S. The pipelines will transport natural gas from Sumas, Washington, to Vancouver Island, British Columbia. The pipeline is a component of the proposed Vancouver Island Generation Project (VIGP), also proposed by BC Hydro, that would build a gas-fired power plant on Vancouver Island. The GSX pipeline would supply gas to the power plant.

Proponent: Georgia Strait Crossing Pipeline LP (GSX-US)/BC Hydro

Location of current proposal: The GSX-US portion of the pipeline would transport natural gas from existing pipeline systems at the United States-Canada border near Sumas, Washington, through Whatcom and San Juan Counties to an interconnection with the GSX-Canada pipeline at Boundary Pass in the Strait of Georgia. The GSX-Canada portion of the pipeline would extend 37.2 miles (27.5 miles offshore and 9.7 miles onshore) from its interconnection with the GSX-US pipeline at Boundary Pass to an interconnection with an existing pipeline operated by Terasen Gas on Vancouver Island south of Duncan.

Title of document being adopted: Georgia Strait Crossing Project Final Environmental Impact Statement (FEIS) prepared under the National Environmental Policy Act (NEPA).

Agency that prepared document adopted: Federal Energy Regulatory Commission (FERC).

Date adopted document was prepared: July 2002

Description of document being adopted: FEIS for same proposal, the entire document including response to comments and appendices is being adopted

If the document being adopted has been challenged (WAC 197-11-630), please describe:
An appeal has been filed challenging the adequacy of the FERC NEPA FEIS

The document is available to be read at: Department of Ecology, Northwest Regional Office, 3190 160th Ave. SE, Bellevue, WA, 98008-5452

EIS Required: The lead agency has determined this proposal is likely to have a significant adverse impact on the environment. To meet the requirements of RCW 43.21C.030(2)(c), the lead agency is adopting the document described above. Under WAC 197-11-360, there will be no scoping process for the adopt EIS. We have identified and adopted this document as being appropriate for this proposal after independent review. We have determined that a Supplemental Environmental Impact Statement is necessary in addition to the adopted document.

Name of agency adopting document: Washington Department of Ecology

Contact person: Tiffany Yelton, email – tyel461@ecy.wa.gov

Responsible official: Ray Hellwig, Northwest Regional Director

Address: 3190 160th Ave. SE, Bellevue, WA, 98008-5452

Date: January 20, 2004

Signature:



Chapter 1

Summary

1. SUMMARY

1.1 PROJECT BACKGROUND

Georgia Strait Crossing Pipeline LP (GSX-US) proposes to construct and operate a natural gas pipeline from the Canadian border near Sumas, Washington, to the United States-Canada border at Boundary Pass, where it would connect with its Canadian counterpart (GSX-Canada) and continue on to Vancouver Island, British Columbia. Both pipelines are a joint undertaking of Williams Gas Pipeline Company and British Columbia Hydro and Power Authority (BC Hydro). The pipeline is a component of the proposed Vancouver Island Generation Project (VIGP), also proposed by BC Hydro, that would build a gas-fired power plant on Vancouver Island. That power plant would be supplied with gas from the Georgia Strait Crossing (GSX) pipeline. ~~On September 8, 2003, the British Columbia Utilities Commission (BCUC) denied the VIGP application for approval and recommended that BC Hydro proceed with a new analysis of alternatives to supply Vancouver Island's energy needs (BCUC 2003). At this time, the effects of the BCUC ruling on the GSX-US project are uncertain.~~

1.1.1 U.S. Federal and State Review

Federal Review

On April 24, 2001, GSX-US filed an application for a Certificate of Public Convenience and Necessity with the Federal Energy Regulatory Commission (FERC) to construct and operate a new pipeline to transport natural gas from existing pipeline systems at the United States-Canada border near Sumas, Washington, to an interconnection with the GSX-Canada pipeline at Boundary Pass in the Strait of Georgia. On June 1, 2001, FERC issued a Notice of Intent to prepare an EIS under the National Environmental Policy Act (NEPA). On October 11, 2001, GSX-US amended its application to reflect a new location for its compressor station and pipeline route variations. FERC issued a Draft NEPA Environmental Impact Statement (EIS) on December 10, 2001 for public and agency review and accepted comments until February 26, 2002. FERC then prepared and issued a Final EIS for the ~~GSX-US~~ project on July 17, 2002~~3~~.

~~The EIS was prepared under the guidelines of the National Environmental Policy Act (NEPA). The GSX-Canada portion of the project is undergoing environmental review under the provisions of the Canadian Environmental Assessment Act.~~

~~simultaneous environmental review by the National Energy Board of Canada.~~

State Review

In December of 2002, the Washington Department of Ecology (Ecology) initiated a process to evaluate whether the project's FERC Final EIS, which meets NEPA standards, also meets the environmental review requirements under the State Environmental Policy Act (SEPA). To determine whether the project's existing NEPA EIS could be adopted to meet the requirements of SEPA, Ecology was required to conduct an independent review of the NEPA document.

As a result of that process, Ecology determined that 39 issues in the ~~Final EIS~~FERC Final EIS were not adequately addressed to satisfy SEPA requirements. On July 28, 2003, Ecology gave GSX-US the list of issues that would need to be addressed in a Supplemental EIS.

The Draft Supplemental EIS (SEIS) was issued for public and agency review on September 24, 2003. Public workshops and hearings on the Draft SEIS were held on October 14 on San Juan Island and October 15 in Bellingham at the following locations:

- October 14, Friday Harbor Senior Center, 589 Nash Street; open house from 4 to 5:15 p.m.; formal hearing at 5:30 p.m.
- October 15, Whatcom County Courthouse, 311 Grand Avenue; open house from 4:30 to 5:30 p.m.; formal hearing at 7 p.m.

The Draft SEIS was available for review online at www.ecy.wa.gov/programs/sea/gsx/; at Ecology offices in Bellingham and Bellevue; at libraries in Bellingham, Blaine, Ferndale, and Lynden; and at the B.C. city libraries of Ocean Park and White Rock.

Written comments on the Draft SEIS were due by October 25 to Sheila Hosner, Department of Ecology, at 3190 160th Avenue SE, Bellevue, Wash., 98008-5452 or by fax, 425-649-7098, or e-mail, shos461@ecy.wa.gov. Oral testimony during the October hearings was also included in the formal public record. Ecology's responses to comments received on the Draft SEIS are in Chapter 4 of this Final SEIS.

1.1.2 Canadian Federal and Provincial Review

Federal Review

Georgia Strait Crossing Pipeline Limited (GSX-Canada), on behalf of GSX Canada Limited Partnership, applied to the National Energy Board (NEB) on April 24, 2001, for a Certificate of Public Convenience and Necessity (CPCN), pursuant to Section 52 of the *National Energy Board Act*, authorizing the construction and operation of the GSX-Canada Pipeline.

An independent Joint Review Panel (JRP) was established by the NEB and the Minister of the Environment to coordinate the assessment of GSX-Canada's application under the *Canadian Environmental Assessment Act* (CEA Act) and the NEB Act. The panel considered matters relevant to its determination of whether the proposed pipeline was required by the present and future public convenience and necessity, including matters related to safety, economic feasibility, and any environmental factors under the CEA Act.

Under the CEA Act, the JRP reviewed the environmental effects of the project and appropriate mitigation measures. The JRP's conclusions and recommendations, including mitigation measures, were included in the *Joint Review Panel Report* released on July 30, 2003. In that report, the JRP concluded that the project would likely result in significant adverse environmental effects, provided the JRP's recommendations are implemented and appropriate

mitigation is applied (NEB 2003a). The *Joint Review Panel Report* was then forwarded to federal Responsible Authorities.

The response of the Government of Canada to the *Joint Review Panel Report* was coordinated by Natural Resources Canada, approved by the Governor in Council pursuant to the CEA Act, and released on November 21, 2003. In that report, the JRP approved the application for CPCN pursuant to the NEB Act, subject to a number of terms and conditions. One of those conditions stated that, prior to project construction, GSX-Canada must confirm that the VIGP has received the necessary regulatory approvals from the British Columbia Utilities Commission (BCUC). The status of provincial review of the VIGP by the BCUC is summarized in the following section.

Provincial Review

On March 12, 2003, the Vancouver Island Energy Corporation (VIEC), a wholly owned subsidiary of BC Hydro, applied to the BCUC for a Certificate of Public Convenience and Necessity for the VIGP. The VIGP would consist of a natural gas-fired generation plant at Nanaimo's Duke Point industrial area on Vancouver Island that would produce 265 megawatts of electricity. The VIGP is closely linked to the GSX pipeline because the pipeline would supply natural gas to the Duke Point generation plant.

On September 8, 2003, the BCUC denied the VIGP application for Certificate of Public Convenience and Necessity and recommended that BC Hydro proceed with a new analysis of alternatives to supply Vancouver Island's energy needs (BCUC 2003). In response to the BCUC ruling, BC Hydro issued a "Call For Tenders" (CFT) on October 31, 2003. Under that process, BC Hydro will accept and evaluate new proposals for energy generation and supply. An Independent Reviewer will evaluate the proposals and recommend a preferred option. This process is expected to be complete by the end of September 2004.

1.2 PROPOSED ACTION AND ALTERNATIVES

The proposed action is the GSX-US portion of the Georgia Strait Crossing pipeline. The GSX-US pipeline is part of a larger project jointly sponsored by BC Hydro and Williams Gas Pipeline Company. The GSX project consists of two integral parts. The GSX-US portion of the pipeline would transport natural gas from existing pipeline systems at the United States-Canada border near Sumas, Washington, to an interconnection with the GSX-Canada pipeline at Boundary Pass in the Strait of Georgia. The GSX-Canada portion of the pipeline would extend 37.2 miles from its interconnection with the GSX-US pipeline at Boundary Pass to an interconnection with an existing pipeline operated by Terasen Gas on Vancouver Island south of Duncan.

1.2.1 Terasen Gas Alternative

Under this alternative, Terasen Gas Vancouver Island, Inc. (TGVI) would undertake phased expansion of its current natural gas distribution system serving Vancouver Island. This includes construction of up to three new compression stations, installation of additional compression at an existing station, pipeline looping ("twinning") of 45.37 miles of existing pipeline, and

construction of a liquid natural gas (LNG) facility with a storage capacity of 1 billion standard cubic feet (Bcf).

1.2.2 No Action Alternative

Under the No Action Alternative, the GSX pipeline would not be constructed. Without the proposed pipeline, other projects may assist in reducing the demand for natural gas on Vancouver Island. An example is a proposal by NorskeCanada. NorskeCanada proposes to install new electrical power cogeneration facilities at three of its mills, in combination with energy conservation and demand management.

1.3 DOCUMENT ORGANIZATION

1.3.1 Final SEIS Sections

This ~~Draft~~ Final Supplemental EIS is organized as follows:

- Chapter 1 contains a summary of the project background, the proposal and alternatives, ~~and~~ issues and responses, and mitigation measures.
- Chapter 2 presents a detailed description of the proposed GSX project, the Terasen Gas Alternative, and the No Action Alternative.
- Chapter 3 contains the responses to the specific issues, organized by element of the environment.
- Chapter 4 contains the comments on the Draft SEIS and responses to comments.
- Chapter 5 contains a list of references used in preparation of the document.
- Chapter 6 contains a list of acronyms and abbreviations.
- Chapter 7 contains the distribution list for the Final Supplemental EIS.
- The Appendix contains project mitigation measures required by FERC.
- ~~Chapter 4 contains a list of references used in preparation of the document.~~
- ~~Chapter 5 contains the distribution list for the Draft Supplemental EIS.~~

1.3.2 Issue Numbers

For this Final SEIS, the numbers assigned to the issues have been revised to read sequentially from 1 through 39. In addition, each issue has been given a brief title for easier reference by the reader. The following list summarizes how the issue numbers have been revised between the Draft and Final SEISs.

<u>Draft SEIS</u>	<u>Final SEIS</u>
<u>Project Description</u>	
<u>Issue 1</u>	<u>Issue 1: Updated Project Description</u>
<u>Issue 2</u>	<u>Issue 2: HDD Pipe String Launch Plan</u>
<u>Issue 3</u>	<u>Issue 3: Canadian Project Alternatives</u>
<u>Geology and Soils</u>	
<u>Issue 1</u>	<u>Issue 4: Active Earthquake Faults</u>
<u>Issue 2</u>	<u>Issue 5: Potential Scour Impacts</u>

<u>Draft SEIS</u>	<u>Final SEIS</u>
<u>Surface Water</u>	
<u>Issue 1</u>	<u>Issue 6: Impaired Waterbodies</u>
<u>Issue 2</u>	<u>Issue 7: Dewatering Impacts</u>
<u>Issue 3</u>	<u>Issue 8: Open-Cut Alternative</u>
<u>Issue 4</u>	<u>Issue 9: Wet Ditch/Dry Ditch Methods</u>
<u>Issue 5</u>	<u>Issue 10: Equipment Impacts in Waterbodies</u>
<u>Issue 6</u>	<u>Issue 11: Open-Cut Crossing Impacts</u>
<u>Issue 7</u>	<u>Issue 12: Hydrostatic Water Test Discharge</u>
<u>Issue 8</u>	<u>Issue 13: Cherry Point HDD Plan</u>
<u>Groundwater</u>	
<u>Issue 1</u>	<u>Issue 14: Water Supply Well Locations</u>
<u>Plants and Animals</u>	
<u>Issue 1</u>	<u>Issue 15: Impacts of Turbidity</u>
<u>Issue 2</u>	<u>Issue 16: Non-Listed Federal and State Species</u>
<u>Issue 3</u>	<u>Issue 17: Impacts to Fisheries</u>
<u>Issue 4</u>	<u>Issue 18: Noxious Weeds/Invasive Species</u>
<u>Issue 5</u>	<u>Issue 19: Access Road Impacts to Wetlands</u>
<u>Issue 6</u>	<u>Issue 20: Wetland Mitigation Plan</u>
<u>Issue 7</u>	<u>Issue 21: HDD Impacts to Marine Plants/Animals</u>
<u>Issue 8</u>	<u>Issue 22: Measures to Protect Bald Eagles</u>
<u>Issue 9</u>	<u>Issue 23: Forest Fragmentation</u>
<u>Issue 10</u>	<u>Issue 24: Marine Mammal Noise Citations</u>
<u>Reliability and Safety</u>	
<u>Issue 1</u>	<u>Issue 25: Pipeline Protection Measures</u>
<u>Land and Shoreline Use</u>	
<u>Issue 1</u>	<u>Issue 26: Consistency with Plans and Policies</u>
<u>Issue 2</u>	<u>Issue 27: Agricultural Lands</u>
<u>Socioeconomics</u>	
<u>Issue 1</u>	<u>Issue 28: References to Support Conclusions</u>
<u>Cultural and Historic Resources</u>	
<u>Issue 1</u>	<u>Issue 29: Eligibility of Prehistoric Sites</u>
<u>Issue 2</u>	<u>Issue 30: Plan for Unanticipated Discovery</u>
<u>Issue 3</u>	<u>Issue 31: Impacts of Route Changes</u>
<u>Issue 4</u>	<u>Issue 32: Cultural Resource Testing Methods</u>
<u>Issue 5</u>	<u>Issue 33: Archaeological Site 45WH536</u>
<u>Issue 6</u>	<u>Issue 34: Eligibility Status of Five Sites</u>
<u>Issue 7</u>	<u>Issue 35: Construction Impacts</u>
<u>Traffic and Transportation</u>	
<u>Issue 1</u>	<u>Issue 36: Analysis of Traffic Impacts</u>
<u>Air Quality</u>	
<u>Issue 1</u>	<u>Issue 37: Wind Patterns</u>
<u>Issue 2</u>	<u>Issue 38: Dispersion Mapping</u>
<u>Noise</u>	
<u>Issue 1</u>	<u>Issue 39: Noise Abatement Measures</u>

1.4 SUMMARY OF ISSUES AND RESPONSES

Table 1-1 presents a summary of the issues addressed in the Draft Supplemental EIS [and updated for this Final Supplemental EIS](#). The issues appear under the corresponding topic or element of the environment. Each section contains a summary of the issue, Ecology's recommendation, and the responses contained in this ~~Draft~~ [Final](#) Supplemental EIS.

1.5 SUMMARY OF MITIGATION MEASURES

1.5.1 Surface Water

- [GSX-US is withdrawing its plan to use a partial or full open cut at Cherry Point if the HDD method fails. Because a partial or full open cut is not proposed at Cherry Point, a contingency mitigation plan has not been proposed.](#)
- [GSX-US will use clean gravel in the upper 12 inches of backfill to stabilize trenches and reduce sedimentation. This recommendation has been incorporated into the Wetland and Riparian Restoration Plan for fish-bearing and 303\(d\)-listed streams.](#)

1.5.2 Plants and Animals

Fisheries

- [GSX-US will minimize, to the extent practicable, the length of pipeline that would traverse known important marine areas.](#)
- [GSX-US will use the HDD technique to install the pipeline from onshore in the Cherry Point area to a depth of -130 feet mean lower low water \(MLLW\).](#)
- [To minimize barriers to the movement of crabs, GSX-US will place the pipeline in a shallow trench to a depth of approximately -240 feet MLLW for the first 5.6 miles of the marine route.](#)
- [To provide additional protection from potential impacts of trawling gear, the pipe will have a 1.6-inch-thick, wire-reinforced concrete coating.](#)
- [GSX-US will ensure that the pipeline is identified on navigational charts.](#)
- [During pipeline construction, support vessels will act as pilot boats to ensure that fishing vessels are alerted to construction activities.](#)
- [GSX-US will ensure that a Notification to Mariners is issued prior to construction.](#)
- [GSX-US will place notices of construction at marinas and in local newspapers, notify the U.S. Coast Guard, and communicate the location of construction vessels to inbound and outbound vessels in the project area.](#)

Project Description	
Issue 1	<p><u>Description: Update Project Description of Problem</u> The current version of the proposed project should be evaluated and subject to public review.</p> <p><u>Action</u> The project description in Chapter 2 reflects the current proposal by GSX-US.</p> <p><u>Description: HDD Pipe String Launch Plan of Problem</u> GSX-US should prepare a site-specific plan for launching the horizontal directional drilling (HDD) pipe string.</p> <p><u>Action</u> The project description in Chapter 2 includes a discussion of the launch plan for the HDD pipe string and the site plan in Figure 2-2.</p> <p><u>Description: Canadian Project Alternatives of Problem</u> The NorskeCanada and Terasen Gas proposals that have surfaced as part of the Vancouver Island Generation Project are not discussed in the FERC EIS.</p> <p><u>Action</u> Chapter 2 includes descriptions of the Terasen Gas and NorskeCanada proposals, and the Terasen Gas Alternative is assessed (to the extent information is available) in Chapter 3, Affected Environment, Significant Impacts, and Mitigation Measures.</p>
Issue 2	<p><u>Description: HDD Pipe String Launch Plan of Problem</u> GSX-US should prepare a site-specific plan for launching the horizontal directional drilling (HDD) pipe string.</p> <p><u>Action</u> The project description in Chapter 2 reflects the current proposal by GSX-US.</p> <p><u>Description: HDD Pipe String Launch Plan of Problem</u> GSX-US should prepare a site-specific plan for launching the horizontal directional drilling (HDD) pipe string.</p> <p><u>Action</u> The project description in Chapter 2 reflects the current proposal by GSX-US.</p> <p><u>Description: HDD Pipe String Launch Plan of Problem</u> GSX-US should prepare a site-specific plan for launching the horizontal directional drilling (HDD) pipe string.</p> <p><u>Action</u> The project description in Chapter 2 reflects the current proposal by GSX-US.</p>
Issue 3	<p><u>Description: Canadian Project Alternatives of Problem</u> The NorskeCanada and Terasen Gas proposals that have surfaced as part of the Vancouver Island Generation Project are not discussed in the FERC EIS.</p> <p><u>Action</u> Chapter 2 includes descriptions of the Terasen Gas and NorskeCanada proposals, and the Terasen Gas Alternative is assessed (to the extent information is available) in Chapter 3, Affected Environment, Significant Impacts, and Mitigation Measures.</p>
Geology and Soils	
Issue 4+	<p><u>Description: Active Earthquake Faults of Problem</u> The FERC Final EIS did not address currently active faults in the project area and did not address the potential for soil liquefaction along certain segments of the route.</p> <p><u>Action</u> Figure 3-1 shows the Vedder and Sumas Mountain faults in relation to the pipeline alignment. The projected location of the Vedder Mountain Fault is approximately 1 mile east of, and parallel to, the proposed pipeline alignment. The projected location of the Sumas Fault crosses the proposed pipeline route somewhere between Milepost 5 and Milepost 8. Section 3.2 also includes a summary of potential seismic impacts from the GSX-Canada environmental assessment.</p> <p><u>Description: Potential Scour Impacts of Problem</u> The FERC Final EIS does not adequately respond to Ecology's Draft EIS comment requesting the name and location of waterbodies with potential scour impacts.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS contains a summary of potential impacts from stream bottom scour for different sizes of waterbodies in the project area.</p>
Issue 5+	<p><u>Description: Potential Scour Impacts of Problem</u> The FERC Final EIS does not adequately respond to Ecology's Draft EIS comment requesting the name and location of waterbodies with potential scour impacts.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS contains a summary of potential impacts from stream bottom scour for different sizes of waterbodies in the project area.</p>

Surface Water	
Issue 61	<p><u>Description</u>:-- Impaired Waterbodies of Problem The discussion of existing surface water quality conditions is inadequate, and should include at a minimum a discussion of the nine waterbodies impaired under 303(d).</p> <p><u>Action</u> Table 3.3-1 summarizes the six waterbodies impaired under Section 303(d). The accompanying discussion also summarizes the analyses and conclusions regarding water quality impairment from Resource Report 2, Water Use and Quality, in Exhibit F-1 of GSX-US's original application to FERC.</p> <p><u>Description</u>:-- Dewatering Impacts of Problem The discussion of construction impacts in the Final EIS <u>FERC Final EIS</u> does not include dewatering impacts.</p> <p><u>Action</u> Water would be pumped out of the trench and discharged to the ground in a manner that does not cause erosion to the ground surface or allow unfiltered flow into wetlands, streams, or lakes. To achieve this, water pumped out of the trench would be discharged to a well-vegetated upland site through a temporary dewatering structure such as a hay bales or a filter bag. Water would not be pumped directly to surface waters. At no time would dewatering exceed 10% of the receiving water volume (see Section 3.3.3).</p> <p><u>Description</u>:-- Open-Cut Alternative of Problem The open-cut method as an alternative crossing method is not discussed in the contingency plan.</p> <p><u>Action</u> GSX is not requesting approval for an open-cut alternative because the horizontal-ditch method (HDD) method will be used to install the shore crossing for the Georgia Strait Crossing Project near Cherry Point, Washington. Based on its own extensive studies, GSX-US has concluded that the HDD shore approach at Cherry Point is achievable with nearly 100% probability of success and is the primary and preferred method to construct the shore crossing. The Draft Final <u>Final</u> Supplemental EIS does, however, contain a brief discussion of the contingency to be used if the HDD is not initially successful (see Section 3.3.4).</p> <p><u>Description</u>:-- Wet Ditch/Dry Ditch Methods of Problem The <u>FERC Final EIS</u> does not elaborate on or evaluate criteria for wet ditch versus dry ditch excavation.</p> <p><u>Action</u> The Draft Final <u>Final</u> Supplemental EIS includes an overview of the wet-ditch method and potential impacts (see Section 3.3.5).</p>
Issue 72	<p><u>Ecology Requirement</u> Expand discussion of existing surface water conditions to allow a reasonable assessment of potential impacts in the environmental review.</p> <p><u>Ecology Requirement</u> Include a more thorough analysis and discussion of the potential effects of dewatering activities on surface water and groundwater, including impacts on stream flows in the environmental review.</p>
Issue 83	<p><u>Ecology Requirement</u> Describe the contingency plan in the environmental review and have in place before construction begins.</p>
Issue 94	<p><u>Ecology Requirement</u> Discuss the criteria to be used for selecting the wet ditch method in the environmental review and expand discussion of the impacts of that approach.</p>

Issue 105	<p><u>Description</u>:-- Equipment Impacts in Waterbodies-of-Problem The Final EIS FERC Final EIS does not adequately discuss the potentially significant adverse impacts of operating clearing equipment through perennial waterbodies.</p> <p><u>Action</u> FERC Environmental Condition No. 14 prohibits equipment crossing through perennial waterbodies unless otherwise approved by FERC in the Implementation Plan. GSX-US will not propose that FERC approve equipment crossing (fording) through perennial streams. GSX-US has revised its Wetland and Waterbody Crossing Procedures to state that clearing crews are to fording perennial streams (see Section 3.3.6).</p>	<p><u>Ecology Requirement</u> FERC Condition No. 14 prohibits equipment crossing through perennial waterbodies unless otherwise approved by FERC.</p>
Issue 116	<p><u>Description</u>:-- Open Cut Crossing Impacts-of-Problem The Final EIS FERC Final EIS does not provide justification for why open-cut crossings of 303(d)-impaired waterbodies would not have an adverse effect.</p> <p><u>Action</u> The GSX project would cross six waterbodies that are listed as 303(d)-impaired. Of these, three would be crossed with trenchless installation methods, such as HDD or conventional boring. The other three would be crossed using open-cut installation methods. Additional discussion of potential adverse effects associated with both methods is included in the Final Final Supplemental EIS (see Section 3.3.7).</p>	<p><u>Ecology Requirement</u> Provide supporting documentation for the conclusion that open-cut crossings would have no adverse impacts in the environmental review.</p>
Issue 127	<p><u>Description</u>:-- Hydrostatic Water Test Discharge-of-Problem The FERC Final EIS does not adequately address the potential for continued erosion of the (hydrostatic testing) discharge area if it is not properly stabilized after the discharges have been completed.</p> <p><u>Action</u> Hydrostatic test water would be discharged through an approved dewatering structure and energy-dissipating device in a manner to minimize disturbance to the environment. Water would be discharged from the pipeline so as not to cause erosion to the ground surface or unfiltered flow into wetlands, streams, or lakes. GSX-US would require samples to be taken of the test water prior to filling or dewatering the pipeline. Water discharge rates would be designed for site conditions. The Final Final Supplemental EIS summarizes the methods and potential effects at two hydrostatic test water discharge sites: the existing Sumas compressor station and the proposed Cherry Point compressor station.</p>	<p><u>Ecology Requirement</u> Include an expanded discussion of hydrostatic test water discharge in the Supplemental EIS and evaluate potential effects of erosion and mitigation measures.</p>
Issue 138	<p><u>Description</u>:-- Cherry Point HDD Plan-of-Problem The FERC Final EIS does not include a discussion of a site-specific plan for the HDD at Cherry Point.</p> <p><u>Action</u> The Final Final Supplemental EIS (Section 3.3.9) includes an overview of the HDD process, potential impacts, and mitigation measures to be used. The discussion focuses on two areas of disturbance: one onshore drill entry hole and one offshore drill exit hole.</p>	<p><u>Ecology Requirement</u> Given the sensitive nature of the Cherry Point shoreline, include the site-specific plan for the HDD at this location in the environmental review.</p>
Groundwater		
Issue 14	<p><u>Description</u>:-- Water Supply Well Locations-of-Problem The FERC Final EIS does not provide a map of water supply well locations or address potential impacts.</p> <p><u>Action</u> The Final Final Supplemental EIS (Section 3.4.2) contains a reference to the map of groundwater wells contained on page 2-5 of Resource Report 2, Water Use and Quality, of Exhibit F-1 of GSX-US's original application to FERC.</p>	<p><u>Ecology Requirement</u> Evaluate and document the locations of private wells within 200 feet and municipal wells within 400 feet of the project.</p>

Plants and Animals	
Issue 15	<p><u>Description</u>:-- Impacts of Turbidity of Problem The Final EIS FERC Final EIS conclusion that turbidity will not affect salmonids or other ocean fish is not documented.</p> <p><u>Action</u> A list of references from pages 3-63 and 3-65 of the FERC Final EIS has been included in the Draft Supplemental EIS Final Supplemental EIS (see Section 3.5.2).</p> <p><u>Ecology Requirement</u> Provide citations of the appropriate literature to support the above conclusion in the environmental review.</p>
Issue 16	<p><u>Description</u>:-- Non-Listed Federal and State Species of Problem The FERC response to Draft EIS comments LA1-13 and 14 with respect to non-listed federal and state species is not adequate.</p> <p><u>Ecology Requirement</u> Summarize and include information from Appendix 3-1 of Resource Report 3 in GSX-US's original application to FERC and other surveys in the SEPA document.</p> <p><u>Action</u> Information on marine fish in the project area was provided in Resource Report 3, Fish, Wildlife, and Vegetation, and Appendix 3-1, Section 2.2 in Exhibit F-1 of GSX-US's original application to FERC. The references to the technical studies have been included in the Draft Supplemental EIS Final Supplemental EIS (Section 3.5.4).</p>
Issue 17	<p><u>Description</u>:-- Impacts to Fisheries of Problem The Final EIS FERC Final EIS does not discuss impacts on the fishing industry and specifically the potential significant impact on the bottom trawl fishery.</p> <p><u>Ecology Requirement</u> Include a discussion of fishing issues, impacts, and mitigation measures in the environmental review.</p> <p><u>Action</u> A detailed summary of potential impacts on the fishing industry and mitigation measures for both the GSX-US and GSX-Canada projects has been included in the Draft Supplemental EIS Final Supplemental EIS (Section 3.5.3).</p>
Issue 18	<p><u>Description</u>:-- Noxious Weeds/Invasive Species of Problem The Final EIS FERC Final EIS does not contain conclusions about the potential to increase or decrease the prevalence of noxious weeds/invasive species in the project area.</p> <p><u>Ecology Requirement</u> In the environmental review, identify the noxious weeds observed during field surveys and analyze impacts to fully discuss the potential effects of this project.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.3.5) references Table 3.3-2 on page 3-65 of the FERC Resource Report 3, Fish, Wildlife, and Vegetation, which identifies the noxious weeds observed during resource surveys. The resource report also describes where noxious weeds are most concentrated in the project area.</p>
Issue 19	<p><u>Description</u>:-- Access Road Impacts to Wetlands of Problem The Final EIS FERC Final EIS does not assess potential impacts of four access roads and the Gulf Road pipe string fabrication on wetlands.</p> <p><u>Ecology Requirement</u> In the SEPA document, include information from the Preliminary Construction Alignment Sheets regarding the change of the access road to avoid wetlands.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.5.6) summarizes GSX-US's revisions to its plans to avoid the placement of fill for access roads in wetlands. In one case, GSX relocated an access road from outside the construction right-of-way to within the right-of-way in order to avoid placement of fill in a wetland. The revised access road alignments are shown on the updated Preliminary Construction Alignment Sheets.</p>

Issue 206	<p><u>Description</u>:-- Wetland Mitigation Plan of Problem The Final EISFERC Final EIS doesn't include the compensatory wetland mitigation plan filed with the U.S. Army Corps of Engineers and Ecology.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.5.7) includes a detailed summary of GSX-US's compensatory mitigation plan for wetlands and riparian areas.</p>	<p><u>Ecology Requirement</u> GSX-US will provide a summary of the wetland restoration plan for inclusion in the SEPA document.</p>
Issue 217	<p><u>Description</u>:-- HDD Impacts to Marine Plants/Animals of Problem The Final EISFERC Final EIS did not adequately address potential impacts on marine vegetation and animals/organisms from the HDD.</p> <p><u>Action</u> An analysis of potential impacts on marine vegetation and animals/organisms is included on page 3-83 of the FERC Final EIS. A discussion of existing conditions and potential impacts on marine fisheries, wildlife, and vegetation resources is also included in Resource Report 3, Fish, Wildlife, and Vegetation, of Exhibit F-1 of GSX-US's original application to FERC. The results of a survey of marine vegetation and animals/organisms in the nearshore environment are included in Appendix 3-1 of Resource Report 3 (see Section 3.5.8).</p>	<p><u>Ecology Requirement</u> Perform a survey and impact analysis of marine vegetation and animals/organisms at the HDD site, and prepare and summarize a mitigation plan in the SEPA document.</p>
Issue 228	<p><u>Description</u>:-- Measures to Protect Bald Eagles of Problem Measures to protect bald eagles do not include avoidance of important breeding and wintering forage periods when GSX-US would conduct pipeline maintenance.</p> <p><u>Action</u> Given their proximity, construction and operation of the proposed pipeline is very likely to disturb bald eagles that are actively breeding at the California Creek nest or roosting adjacent to Bertrand Creek. White bald eagles have shown considerable ability to acclimate to ongoing human activities, the proposed construction would be an unusual activity that does not normally occur near the California Creek territory. Therefore, the activity would be more likely to disturb breeding birds (see Section 3.5.9).</p>	<p><u>Ecology Requirement</u> Summarize information from Resource Report 3 and from WDFW's Washington Department of Fish and Wildlife's Bald Eagle Management Plan in the Supplemental EIS.</p>
Issue 239	<p><u>Description</u>:-- Forest Fragmentation of Problem Assumptions regarding temporary forest habitat impacts are incorrect and forest fragmentation effects on wildlife are not quantified.</p> <p><u>Action</u> Based on a review of the most recent project maps, as well as aerial photographs of the project alignment and project vicinity, two large and relatively contiguous forested stands would be fragmented by the proposed pipeline right-of-way. The proposed pipeline right-of-way would convert from 6 to 15 acres of the two forested stands (see Section 3.5.10).</p>	<p><u>Ecology Requirement</u> In the environmental analysis, include data, a map, and discussion on what forested stands of significant size (if any) are fragmented.</p>
Issue 240	<p><u>Description</u>:-- Marine Mammal Noise Citations of Problem The Final EISFERC Final EIS does not adequately cite sources of information concerning marine mammals and their relationship to underwater noise.</p> <p><u>Action</u> An additional reference was provided and included in Section 3.5.11 of the Draft Supplemental EIS Final Supplemental EIS.</p>	<p><u>Ecology Requirement</u> Provide complete references for all citations in the environmental review.</p>

Reliability and Safety	
Issue 25	<p><u>Description</u>:-- Pipeline Protection Measures of Problem Pipeline protection measures need further discussion and clarification; emergency situation delay response time information is not adequate.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.6.2) contains a detailed summary of measures describing how the pipeline would be designed, constructed, operated, and maintained in accordance with the federal Department of Transportation's Minimum Federal Safety Standards in 49 CFR 192, which is the federal safety standard used in the transportation of natural gas.</p>
Land and Shoreline Use	
Issue 26	<p><u>Description</u>:-- Consistency with Plans and Policies of Problem The FERC Final EIS FERC Final EIS does not include a summary of existing land use plans and policies applicable to the proposal, nor does it include a discussion of consistency with those plans and policies.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.7.2) includes an assessment of the consistency of the GSX-US project with adopted land use plans, policies, and regulations. A summary of the key elements of each plan, policy, or regulation is provided and is followed by an analysis of consistency with the proposal.</p> <p><u>Description</u>:-- Agricultural Lands of Problem The Final EIS FERC Final EIS does not include a discussion of measures to mitigate the permanent conversion of agricultural land to utility uses.</p> <p><u>Action</u> During construction, the GSX-US project would temporarily affect approximately 329 acres of agricultural land. Of that total, approximately 14 acres of hay meadow and pasture would be lost for the life of the project. In the GSX-Canada project, 28.2 acres of agricultural land will be at least temporarily affected by pipeline construction. No estimate is available for the number of acres of agricultural land that may be permanently lost (see Section 3.7.3).</p>
Socioeconomics	
Issue 28	<p><u>Description</u>:-- References to Support Conclusions of Problem The Final EIS FERC Final EIS does not provide references to support conclusions on population, economy, employment, housing, property values, and tax revenues.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.8.2) includes a list of references originally contained in Resource Report 5, Socioeconomics, of Exhibit F-1 of GSX-US's original application to FERC.</p>

Cultural and Historic Resources		
Issue 294	<p><u>Description:</u> Eligibility of Prehistoric Sites of Problem The eligibility status of prehistoric sites is not clear.</p> <p><u>Action</u> Although the National Register status of prehistoric sites 45WH536, 45WH535, and 45WH534, and historic site 37-15 has not been resolved, GSX-US will treat the sites as if they are eligible for listing and will attempt to avoid the resources in the design phase. If avoidance is not feasible, GSX-US will consult with the Office of Archaeology and Historic Preservation (OAHP) and affected Indian tribes to determine the sites' significance and formulate treatment plans (see Section 3.9.2)</p>	<p><u>Ecology Requirement</u> Clearly state the eligibility status of prehistoric sites in the environmental review and the steps to be taken to protect them from adverse impacts.</p>
Issue 302	<p><u>Description:</u> Plan for Unanticipated Discovery of Problem The Final EIS FERC Final EIS states that a plan for unanticipated discovery has been submitted. However, no details on protocol have been provided.</p> <p><u>Action</u> GSX-US prepared an Unanticipated Discovery Plan that was included in Resource Report 4, Cultural Resources, of Exhibit F-1 of GSX-US's original application to FERC. Although the plan was accepted by FERC, it has not been reviewed by OAHP and affected Indian tribes and incorporated into a Memorandum of Agreement. The Draft Supplemental EIS Final Supplemental EIS (Section 3.9.3) outlines the primary features of the Unanticipated Discovery Plan.</p>	<p><u>Ecology Requirement</u> Provide a summary of the plan for unanticipated discovery in the environmental review and specify that this would also be applicable for prehistoric and ethnohistoric properties.</p>
Issue 31	<p><u>Description:</u> Impacts of Route Changes of Problem The Final EIS FERC Final EIS does not adequately address the effects of changes to the pipeline route on cultural resources in the current right-of-way.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.9.4) summarizes the current status of cultural resource surveys, the results of prior surveys, and the status of previously identified archaeological sites in the project area.</p>	<p><u>Ecology Requirement</u> In the environmental review, include maps that show those portions of the route that have changed, and the status of archaeological surveys for those areas.</p>
Issue 324	<p><u>Description:</u> Cultural Resource Testing Methods of Problem The Final EIS FERC Final EIS states that cultural resource testing was conducted without specifying the methodology.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.9.5) contains a summary of the methodologies used for cultural resource surveys.</p>	<p><u>Ecology Requirement</u> Summarize the testing methodology in the environmental review.</p>
Issue 335	<p><u>Description:</u> Archaeological Site 45WH536 of Problem The Final EIS FERC Final EIS states that the OAHP considers a certain prehistoric site to be significant with the assertion, "that it is not well represented in the archaeological record" without any explanation of the site or its contents.</p> <p><u>Action</u> OAHP considers archaeological site 45WH536 to be significant. The site is a shallow scatter of prehistoric stone tools, bone artifacts, and fire-cracked rock. Few resources of this type have been recorded in interior western Washington (see Section 3.9.6).</p>	<p><u>Ecology Requirement</u> Clearly state the type of site and its features or artifact assemblage in the environmental review to clarify OAHP's assertion of significance.</p>

Issue 346	<p><u>Description:</u> – Eligibility Status of Five Sites of Problem The Final EISFERC Final EIS cites five historic cultural resources without identifying eligibility status.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.9.7) summarizes the eligibility status of the identified resources.</p>	<p><u>Ecology Requirement</u> Include a determination of eligibility for the cultural resources in the environmental review.</p>
Issue 357	<p><u>Description:</u> – Construction Impacts of Problem The Final EISFERC Final EIS did not adequately assess potential impacts on cultural/historic resources of project staging areas, temporary work areas, and access roads.</p> <p><u>Action</u> GSX-US surveyed access roads and staging areas as well as a 300-foot-wide corridor centered on the proposed pipeline’s centerline. During the initial and one supplemental survey in 2000, 4.3 miles of the pipeline right-of-way was not surveyed because of landowner refusals. The results of additional archaeological survey since then have not been compiled. The results of these studies may identify additional resources in the project area (see Section 3.9.8)</p>	<p><u>Ecology Requirement</u> Evaluate all project staging and temporary work areas and access roads for potential impacts on cultural/historic resources.</p>
Traffic and Transportation		
Issue 364	<p><u>Description:</u> – Analysis of Traffic Impacts of Problem The FERC Final EIS does not contain any meaningful analysis of traffic impacts.</p> <p><u>Action</u> The Draft Supplemental EIS Final Supplemental EIS (Section 3.10.2) includes a brief analysis of potential impacts from construction traffic generated by the proposed project. It addresses construction workforce travel routes to and from job sites, the general effects of pipeline road crossings, and trips generated by construction vehicles and equipment. Although construction traffic generated by the GSX project alone is not expected to be significant, the potential exists for substantial cumulative impacts on traffic from simultaneous construction activity on the GSX project and the BP Cherry Point Cogeneration project in 2004 and 2005.</p>	<p><u>Ecology Requirement</u> Ecology’s amended recommendation is that the Supplemental EIS include a limited analysis of traffic impacts associated with project construction.</p>
Air Quality		
Issue 374	<p><u>Description:</u> – Wind Patterns of Problem Because the air quality section of the Final EISFERC Final EIS does not discuss wind patterns, it is not possible to determine if specific residential locations may be more susceptible to emissions than other locations.</p> <p><u>Action</u> According to data from the National Oceanic and Atmospheric Administration monitoring program (1994-1999), the average wind speed over a six-year monitoring period was 9 mph. Over that six-year period, the month of January had the highest average wind speed of 9.7 mph and August had the lowest at 7.9 mph. Prevailing wind direction over the monitoring period was 190°. Wind roses from the Bellingham International Airport show a similar trend with the wind blowing from the south to north between the years of 1991-1995 (see Section 3.11.2).</p>	<p><u>Ecology Requirement</u> In the environmental review, include an analysis and discussion of wind patterns for the project area and surrounding region.</p>

<p>Issue 382</p>	<p><u>Description:- Dispersion Mapping of Problem</u> The Final EISFERC Final EIS does not include dispersion mapping in support of its claim of impacts below the Acceptable Source Impact Level.</p>	<p><u>Ecology Requirement</u> Include dispersion mapping in the environmental review so that destination areas for project emissions may be identified.</p>
<p><u>Action</u> Each component (turbine, generator, dehydration unit, and boiler) of the Cherry Point compressor station was modeled and compared to the Prevention of Significant Deterioration (PSD) threshold of 250 tons per year (tpy). If results showed that the regulated pollutants were above the PSD threshold, further analysis would be necessary. However, results showed that each component of the compressor station was below the PSD major source threshold of 250 tpy. Therefore, the Cherry Point compressor station is not subject to the requirements of the PSD program, and no dispersion modeling is required (see Section 3.11.3).</p>		
<p>Noise</p>		
<p>Issue 394</p>	<p><u>Description:- Noise Abatement Measures of Problem</u> The Final EISFERC Final EIS is does not include an adequate description of noise abatement measures.</p>	<p><u>Ecology Requirement</u> Clearly identify in the environmental review the proposed noise abatement measures for the project.</p>
<p><u>Action</u> Two additional studies were conducted for GSX-US to analyze noise generated by gas flow through the underwater pipeline. The results of the two studies, summarized in this Draft Supplemental EIS <u>Final Supplemental EIS</u> (Section 3.12.2), show that the proposed pipeline would not generate sounds of high enough frequencies and intensities to negatively affect marine life.</p>		

Noxious Weeds/Invasive Species

GSX-US will implement its Noxious Weed Management Plan previously submitted to Whatcom County and Ecology. The plan will include measures appropriate to control noxious weeds in uplands and wetlands. Where application of herbicides is prohibited (i.e., within 100 feet of wetlands), GSX-US will manually remove noxious weeds. GSX-US will install native plants to control the spread of noxious weeds, particularly reed canarygrass.

Stream and Wetland Crossings

Where possible, GSX-US will avoid crossing streams and wetlands. Where such crossings are unavoidable, GSX-US will implement measures to minimize impacts including, but not limited to, the following:

- Trenchless methods (horizontal directional drilling or conventional boring) will be used where technically feasible to cross important streams (and adjacent wetlands) as determined through consultation with Washington Department of Fish and Wildlife biologists.
- Drill and bore entry and exit points will be located outside forest and scrub-shrub wetlands to the extent possible.
- Valve site locations or layout areas will be selected or designed to avoid permanent fill in wetlands.
- The Cherry Point compressor station will be relocated from its originally proposed location to avoid permanent fill in a palustrine emergent wetland.
- The pipeline alignment and work areas will be designed or modified where possible to avoid wetlands.
- Staging areas, pipe storage sites, and other ancillary facilities will be located on upland sites.
- Existing pipeline, road, and powerline corridors will be followed to the maximum extent possible.
- The construction right-of-way will be narrowed from 100 to 75 feet (except in agricultural wetlands and certain extra workspace areas).
- The design will be modified to minimize extra workspace in wetlands.
- The pipeline route will be selected to avoid forested wetlands where possible.

In cases where impacts to streams and wetlands cannot be avoided during construction, GSX-US will implement a Wetland and Riparian Restoration Plan. Measures to be contained in the plan include onsite restoration, compensatory mitigation for non-riparian wetlands, and compensatory mitigation for riparian areas. These measures are outlined in the following sections.

Onsite Restoration

Onsite restoration will be implemented so that no net loss of acreage is associated with riparian areas or wetlands. The primary goal of restoration will be to reestablish vegetation communities comparable to those affected by proactively seeding and planting native species that are present in riparian areas and wetlands disturbed by the project. Site-specific restoration plans will be developed for named streams including all streams with fisheries. Typical restoration specifications will be applied to minor tributaries, ditches, and non-riparian wetlands.

Woody riparian vegetation exists at 28 of the waterbodies that will be crossed during construction, 7 of which will be crossed using trenchless methods and 8 of which are ditches with only a few scattered shrubs or trees. Where it occurs, woody vegetation will be cut off at ground level within the construction right-of-way. Tree stump removal and grading will be limited to areas directly over the trench; stumps or root systems not affected by trench excavation will be left in the ground to provide streambank stability. Streambanks will be stabilized and temporary sediment barriers installed within 24 hours of completing the crossing. Bank stabilization will be completed prior to returning flow to the channel. All streambanks, channelized streams, and ditches will be restored to their approximate original contours.

Clean gravel will be used for the upper 1 foot of trench backfill in the streambeds of selected waterbodies that contain fisheries. Remaining water bodies with identified fisheries will be crossed using trenchless methods. Clean gravel will also be used in the upper 1 foot of trench backfill in the streambeds of open-cut impaired waterbodies (303[d]-listed sites) to stabilize the trenchline and reduce potential sedimentation.

Woody debris will be placed in the floodplains of selected waterbodies to increase biologic diversity for plants and animals, provide protection for establishing vegetation, contribute complexity to the floodplain, and increase floodplain roughness, thereby decreasing potential overbank flow velocities and resultant avulsion.

Topsoil will be replaced in those areas from which it was removed; redistribution depths will vary depending on stripping depths. Topsoil will not be mixed with spoil material at any time during salvage or replacement activities. Amendments (lime, fertilizer, mulch) will not be applied to redistributed soils. GSX-US will cross agricultural wetlands in a manner consistent with the way the land is normally managed for agriculture. Soils that have been compacted, are heavily crusted, or consist of large clods will be chisel plowed, disced, or harrowed, depending on equipment limitations. The seedbed will be left in a roughened condition adequate to capture precipitation, reduce runoff, and provide microsites for seed germination.

In non-agricultural preconstruction communities, three revegetation types that include primarily hydrophytic species will be established: herbaceous wetland, shrub wetland, and forested wetland. The herbaceous wetland revegetation type is a composite of existing palustrine emergent plant communities on the project. The shrub wetland and forested wetland revegetation types are equivalent to palustrine scrub-shrub and palustrine forest communities present on the project.

Proposed seeding and planting specifications are described in detail in the Wetland and Riparian Restoration Plan. Commodity crops in agricultural lands will be revegetated according to landowner preference. Where the pipeline disturbance corridor overlaps existing cleared rights-of-way, herbaceous species that reflect existing vegetation on those rights-of-way will be seeded.

Permanent erosion and sediment control measures will include established vegetation cover and water bars. Erosion control fabrics will be applied to some areas to provide interim erosion

control until vegetation cover has been established. All existing non-agricultural riparian buffer zones that are disturbed will be revegetated with appropriate native species.

The construction schedule across waterbodies will comply with established timing windows described in the FERC Final EIS. In-stream construction activities will be limited to the period from June 15 to September 1 for those waterbodies known to contain chinook salmon and from June 15 to October 15 for all other waterbodies with fisheries.

In general, waterbodies will be crossed during periods of low flow to avoid resident and spawning species' life cycles. Wetlands will be crossed during the summer/fall season when water levels are lower.

Revegetation activities will be determined by construction schedules, seasonal climatic conditions, and site conditions. Seeding and planting will be coordinated with other reclamation activities to occur as soon after seedbed preparation as possible, weather and soil conditions permitting, ideally during the locally recognized planting season (September 15 to October 15).

Restored waterbodies/riparian areas and wetlands will be protected using traffic management, erosion and sediment control structures, fencing, selective vegetative maintenance, and noxious weed control. Monitoring and inspection will be conducted during construction/restoration activities to ensure environmental compliance.

Following construction and restoration, the pipeline right-of-way will be evaluated to assess revegetation success and the effectiveness of erosion and sediment control measures. The right-of-way will also be patrolled from the air on a regular basis.

Compensatory Wetland Mitigation

To compensate for the temporary and long-term changes in wetland functions, a compensatory wetland mitigation area will be developed. The compensatory wetland mitigation site is located along the pipeline route just east of Kickerville Road on land owned by GSX-US (Figure 3-2). The site is currently palustrine emergent wetland, herbaceous upland, and recently logged upland forest. The existing herbaceous wetland will be enhanced with shrub and tree plantings and by controlling reed canarygrass.

Not less than 7 acres of forest and scrub-shrub wetland will be developed at this site. To meet Ecology's recommended replacement ratios, 9 acres of additional wetland enhancement is required. The search for an additional 9-acre mitigation site has begun. Both sites will be monitored for 10 years to ensure mitigation success.

Compensatory Riparian Mitigation

To compensate for the temporary and long-term changes in riparian functions, a compensatory riparian mitigation area will be developed. The compensatory riparian mitigation site is located along the pipeline route just west of Jackson Road and east of the proposed Cherry Point compressor station on land owned by GSX-US (Figure 3-3). The site is a tributary to Terrell

Creek with a narrow palustrine emergent wetland along the stream and hay meadow on either side of the stream. The site will be planted with trees and shrubs creating 2.2 acres of woody riparian vegetation, of which 0.6 acre will be palustrine forested wetland and 1.6 acres will be non-wetland riparian forest. Plantings will be monitored in conjunction with the compensatory wetland mitigation area to ensure adequate tree and shrub survival.

Marine Vegetation and Animals/Organisms

GSX-US will survey existing conditions prior to construction to have the most recent data available for the post-construction analysis. Such a survey will be conducted after the HDD is completed. Observed impacts will be mitigated in consultation with the state and federal resource agencies.

Bald Eagles

GSX-US will comply with the Washington Department of Fish and Wildlife's *California Creek Bald Eagle Management Plan*, which imposes the following conditions to protect the California Creek bald eagle territory:

- No excavation within 50 feet of a nest tree.
- No tree removal within 100 feet of a nest tree.
- All material removed for the trench and piled during pipe installation will be used to refill the trench and/or be spread on adjacent fields and will not remain piled within 50 feet of the nest tree.
- A report from a certified arborist, indicating the health of a danger tree and the need to remove the tree, shall be submitted to Washington Department of Fish and Wildlife before cutting a dangerous tree.
- Timing restrictions are strongly recommended for the area within 400 feet of the active nest, but not required.

All activities within 0.25 mile of active bald eagle nest sites that exceed ambient noise or disturbance levels will be restricted between August 15 and January 1 (i.e., the open construction window).

GSX-US will avoid construction and operation activities within 0.25 mile of the California Creek nest territory between January 1 and August 15, and will not remove potential perch trees from the forested stand adjacent to Bertrand Creek.

1.5.3 Reliability and Safety

The GSX-US pipeline will be designed, constructed, operated, and maintained in accordance with the federal Department of Transportation's *Minimum Federal Safety Standards* (49 CFR 192), which is the federal safety standard used in the transportation of natural gas. The following sections elaborate further on mitigation measures to address the specific safety-related concerns expressed by Ecology.

Leak Detection

GSX-US will design and implement a supervisory control and data acquisition (SCADA)-based leak detection system that will address some of the unique characteristics of the marine pipeline and ultimately provide an increased level of safety and reliability.

The SCADA leak detection system will continuously monitor the gas pressure, temperature, and volume of the system. The system will be designed based on the specific parameters of the pipeline with a minimum design detection limit of 10% loss of throughput in a 24-hour period. The system parameters will be finalized after the pipeline is in service and the system has been adjusted for actual operating conditions.

Response times will depend on a number of factors related not only to the design of the system, but also to the nature of the situation. For example, very small leaks will be detected and identified over a longer time period than will larger leaks. The system will be designed such that larger leaks will be identified very quickly. If a leak were detected, system flow will be stopped immediately by remote operators from the gas control center or by local operations personnel.

The preliminary design suggests that the smallest leak to be identified by the system will be about a 1-inch-diameter hole for the onshore pipeline and about a 1/8-inch-diameter hole for the marine pipeline. In either case, the leak will be equal to about 1% of the total throughput of the GSX-US system.

The leak detection system will be monitored 24 hours a day, 7 days a week, 365 days a year at the gas control center in Salt Lake City, Utah. The system will provide continuous information to the control center operators, and appropriate threshold and alarm values will be set such that warnings are provided to the operators when critical parameters are exceeded.

Integrity Evaluation

GSX-US will develop and implement a Risk Management Process as part of a systematic and comprehensive Integrity Management Plan to reduce the risk of pipeline failure and the resulting consequences related to a failure. The process will integrate information from various sources such as a geographic information system (GIS), cathodic protection data, and in-line inspections to better identify and analyze the threats to the integrity of the pipeline. Through a formal and detailed ranking process, projects and activities will be identified to mitigate potential system integrity threats, thereby reducing the likelihood of failure. The Risk Management Process will examine the consequence of potential releases and explore opportunities to minimize impacts on public safety, health, business, and the environment.

GSX-US will develop and implement an Integrity Assessment Program that includes a database of all risk factors to the pipeline. The data will include soil data, depth of cover, geologic hazards, pipe data, appurtenance data, operating data, third-party damage factors, and population density. The Integrity Assessment Program will analyze the data to determine risk levels for different segments of the system and appropriate intervals for internal inspections, close interval surveys, and other monitoring.

Check Valves

GSX-US will install check valves (devices used in pipelines for restricting flow to one direction) at three proposed interconnections on the GSX-US system. Two interconnections are located in Sumas: one at the existing Westcoast system and one at the existing Northwest Pipeline system. The check valves will prevent the backflow of gas from GSX-US into either the Westcoast or the Northwest system. The third interconnection will be located on Vancouver Island to connect GSX-US with the TGVI pipeline.

Mainline Valves

GSX-US will install mainline block valves (to stop the flow of gas and to isolate smaller sections of the pipeline) at six locations:

- MP 0.0 (Sumas interconnection site)
- MP 7.6
- MP 15.1
- MP 19.8
- MP 26.3
- MP 32 (Cherry Point compression site)

Spacing between the valves will conform to Class 3 criteria even though the entire GSX-US route is Class 1 or Class 2 at this time.

All mainline block valves will be equipped with blowdowns on both sides of the valve. The blowdowns consist of an aboveground riser or pipe segment and a valve. In case of emergency or for certain maintenance activities, the appropriate pipeline segment will be isolated by closing the nearest valve on both ends of the segment. Any remaining gas will be safely vented to the atmosphere through the blowdowns.

Staff Training

GSX-US will ensure that all personnel are adequately trained as outlined in its Operations and Maintenance Manual. Employees will be trained based on work activities. Employees must also pass operator qualifications for core competency skills. Refresher training will be conducted as needed. Employees will participate in health and safety training during district employee meetings. The training employees receive will be documented in a computer-based management system.

Third-Party Damage Prevention

GSX-US will undertake a number of activities and use a variety of tools to protect its assets and the public from third-party damage. These activities and tools include the following:

- Weekly aerial surveys, weather permitting, to view any activity along the right-of-way.

- Flyers, letters, brochures, and documents sent to landowners to remind them of the pipeline and its location and to notify Williams Gas Pipeline Company of any activity along the right-of-way.
- Public education policy and procedure.
- Mutual assistance with local public officials and related operators.
- Policy and procedure to protect facilities from vandalism, terrorists, criminal activity, and similar threats.
- Continuing documented surveillance to monitor changes in class location.
- Leak surveys (without leak detection equipment) at intervals not exceeding 15 months, but at least once each calendar year.
- Leak surveys (with leak detection equipment) in Class 3 locations at intervals not exceeding 7.5 months, but at least twice each calendar year.
- Installing and maintaining line markers.
- Keeping right-of-way cleared and visible.

Washington Utilities and Transportation Commission Recommendations

- The GSX-US pipeline will be odorized for public safety.
- Prior to commissioning of the pipeline, GSX-US will conduct an internal inspection survey (smart pig) of the pipeline to identify construction anomalies and establish a baseline for future evaluations.
- Future internal inspections will be done at approximately five-year intervals to identify wall loss from corrosion and third-party excavation damage.
- A schedule will be established for excavating anomalies that require field inspection and remediation defects that require repair.
- GSX-US will use the data obtained from the internal inspection to perform a risk integrity assessment of the pipeline to determine the appropriate frequency of internal inspections.

1.5.4 Land and Shoreline Use

Agricultural Lands

GSX-US will compensate farmers based on fair market value for both temporary and long-term losses of agricultural productivity. GSX-US will also adopt and implement the mitigation procedures outlined in the FERC *Upland Erosion and Control, Revegetation and Maintenance Plan* during project construction. GSX-US will salvage, store, protect, and respread topsoil to return agricultural lands to preconstruction productivity. Measures to restore disturbed areas will include relieving compaction, mulching, fertilizing, preparing the seedbed, and revegetation.

1.5.5 Cultural and Historic Resources

Tribal Consultation

If the pipeline route changes and cultural sites cannot be avoided, GSX-US will consult with the OAHP and affected Indian tribes. If the resources are determined to be National Register-eligible, a treatment plan will be devised.

Unanticipated Discovery Plan

GSX-US will develop and implement an Unanticipated Discovery Plan. The Unanticipated Discovery Plan proposes that if any potential historic properties are discovered, the following will occur:

- Work in the vicinity of the find will be stopped and physical barriers will be installed to protect the resource.
- FERC, OAHP, affected Indian tribes, First Nations, GSX-US's archaeological contractor, and the landowner will be contacted.
- The archaeological contractor will evaluate the discovery in consultation with the agencies, Indian tribes, and First Nations and prepare a report with treatment recommendations for their concurrence.
- Construction will resume in the area after the treatment plan had been approved, implemented, and completed.
- If human burials are discovered, the county sheriff and coroner will be contacted. Depending on the nature of the burial, GSX-US will follow appropriate state procedures for non-Indian burials or will consult with the agencies and Indian tribes on treatment and accommodate to the extent feasible the concerns and requests of the affected Indian tribes, in addition to the above procedures.

1.5.6 Traffic and Transportation

Construction Traffic

GSX-US will prepare and implement a *Construction Transportation Management Plan (CTMP)*. Components of the CTMP will include, but not be limited to, the following:

- Construction employees will share rides or be bused to the construction right-of-way. To reduce overall traffic, construction workers will leave personal vehicles at the contractor's yard and share rides or ride buses to the construction right-of-way.
- Construction employees will commute during off-peak hours. Because pipeline construction work is generally scheduled to take advantage of all daylight hours, workers will commute to and from the site in off-peak hours.
- Construction equipment will remain onsite during construction of the pipeline. In addition, most equipment will be located in the pipeline right-of-way and will not affect traffic on local roads after its initial delivery to the construction site.

- GSX-US will require construction workers to use contractor yards as the primary parking area for their personal vehicles. Workers will be transported from contractor yards by buses provided by the contractor. Transporting workers by bus will reduce traffic and eliminate the need for personal vehicles to be parked along the right-of-way or along roadsides near the right-of-way.
- When a pipeline crossing requires an open cut of a road, GSX-US will attempt to maintain at least one lane of traffic with detours around construction, plating over the open portion of the trench, or other suitable methods. Traffic control measures such as flaggers, signs, lights, and barriers will be used during construction to ensure safety and to minimize traffic congestion.
- GSX-US will apply for all necessary permits to cross and/or use roads.
- To minimize disruption by construction traffic, GSX-US will use contractor yards to ensure adequate roadway access to pipeline construction areas. Construction equipment will most likely be transported to the area via I-5 and delivered to the construction right-of-way on low-boy semi-trucks. Some equipment will be stored at the Portal Way site. This equipment will be dropped off in one location and moved in a linear direction along the construction right-of-way. The amount of equipment moving from site to site will be minimal.
- Construction hours will be strictly adhered to as follows:
 - Marine: 24-hour-a-day operations.
 - All HDDs, including Cherry Point: from 10 to 12 daylight hours of operation to 24-hours-a-day operations during some phases.
 - Onshore construction: an average of 10 to 12 daylight hours of operation with a small number of cases in which this will be exceeded.
- GSX-US and its contractors will comply with local road weight limits and restrictions and will keep roads free of mud and other debris that may be deposited by construction equipment. Track-driven equipment will cross roads on tires or equipment pads to minimize road damage. Any roadways damaged by construction activities will be repaired.

Chapter 2

Description of Proposal and Alternatives

2. DESCRIPTION OF PROPOSAL AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the proposed project and alternatives. It is also intended to address Issues 1 through 3 identified by Ecology. Those issues include: (1) an updated project description, (2) a description of the HDD pipe string launch plan, and (3) a description of Canadian project alternatives. The response to each issue is highlighted in the appropriate section of this chapter.

2.1.1 Background

GSX-US proposes to construct and operate a natural gas pipeline from the Canadian border near Sumas, Washington, to the United States-Canada border at Boundary Pass in the Strait of Georgia. ~~At the Boundary Pass border,~~ the pipeline would connect with its Canadian counterpart (GSX-Canada) and continue on to Vancouver Island, British Columbia. Both pipelines are a joint undertaking of Williams Gas Pipeline Company and BC Hydro.

The pipeline is a component of the proposed Vancouver Island Generation Project (VIGP), proposed by the Vancouver Island Energy Corporation (VIEC), a subsidiary of BC Hydro. VIEC proposes to construct a gas-fired power plant on Vancouver Island to supply the growing energy needs of island residents and businesses. That power plant would be supplied with gas from the GSX pipeline.

In March of 2003, VIEC applied to the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity to construct the VIGP. On September 8, 2003, the BCUC denied VIEC's application and recommended that BC Hydro proceed with a new analysis of alternatives to supply Vancouver Island's energy needs (BCUC 2003). In response to the BCUC ruling, BC Hydro issued a "Call For Tenders" (CFT) on October 31, 2003. Under that process, BC Hydro will accept and evaluate new proposals for energy generation and supply. An Independent Reviewer will evaluate the proposals and recommend a preferred option. At the time of publication of this Final SEIS, 23 bidders had registered. Some bidders are proposing new sources of power, whereas others would likely be interested in assuming control of VIGP's assets and completing a gas-fired plant similar to VIGP. This process is expected to be complete by the end of September 2004.

GSX-Canada shall confirm, prior to vegetation clearing, ground-breaking activities, or marine pipe laying operations, whichever comes first, that regulatory approvals for the VIGP have been obtained. GSX-Canada shall also file a letter with the Board from an officer of BC Hydro stating that the company intends to construct that facility and the date construction is scheduled to commence.

At this time, the effects of the ~~BCUC ruling on the GSX-US project are uncertain.~~ NEB decision and BCUC process on the overall GSX pipeline are uncertain. However, they may result in delays to project permitting and construction.

2.1.2 Current Project Alternatives

As lead agency, the Department of Ecology recommended analysis of the following alternatives for this Supplemental EIS:

- **Proposed Action** – The proposed action is the Georgia Strait Crossing (GSX-US) project. The GSX-US pipeline is part of a larger project jointly sponsored by BC Hydro and Williams Gas Pipeline Company. The GSX project calls for the design, construction, and operation of two interconnecting natural gas pipelines, one in Canada and one in the U.S. The pipelines will transport natural gas from Sumas, Washington, to Vancouver Island, British Columbia. Because it is an international project, the GSX pipeline has a U.S. component (GSX-US) and a Canadian component (GSX-Canada).
- **Terasen Gas Alternative** – Under this alternative, TGVI would undertake phased expansion of its current natural gas distribution system serving Vancouver Island. The Terasen Gas Alternative includes construction of up to three new compression stations, pipeline looping (“twinning”) of 45.3 miles of existing pipeline, and construction of a LNG facility with a storage capacity of 1 Bcf.
- **No Action Alternative** – Under the No Action Alternative, the GSX pipeline would not be constructed. Without the proposed pipeline, other projects may assist in reducing the demand for natural gas on Vancouver Island. An example is a proposal by NorskeCanada. NorskeCanada proposes to install new electrical power cogeneration facilities at three of its mills, in combination with energy conservation and demand management.

2.1.3 Alternatives Considered in the FERC Final EIS

The FERC Final EIS discussed several system alternatives to the GSX proposal. System alternatives differ from alternative pipeline routes in that they make use of existing, modified, or planned pipeline systems to meet the stated objectives of the proposed project. A system alternative could make construction of all or part of the proposed project unnecessary. However, some modifications to an existing system may be required to increase its capacity or, conversely, an entirely new system may need to be constructed. Those alternatives, discussed in Chapter 4.0 of the FERC Final EIS, are summarized below.

Centra System Alternatives

Centra (now TGVI) had proposed two system alternatives that were discussed in the FERC Final EIS. The first alternative would have expanded the existing Centra system without a new marine crossing. Features included two new compressor stations, the upgrade of a third compressor station, and approximately 161 miles of pipeline “looping.”

The second alternative would have expanded the existing Centra system with a new marine crossing of the Strait of Georgia between Sechelt and Harmac. Additional features included two new compressor stations, an 18.6-mile marine crossing of the Strait of Georgia, a 0.8-mile marine crossing of Northumberland Channel, approximately 63 miles of onshore looped pipeline, and approximately 10 miles of new onshore pipeline.

BC Gas System Alternative

BC Gas (now Terasen Gas) currently operates a natural gas distribution system in southern British Columbia. However, it does not currently provide natural gas to Vancouver Island. TGVI, a wholly owned subsidiary of Terasen Gas, provides natural gas service to Vancouver Island. GSX-Canada evaluated the expansion of the BC Gas system as an alternative to the proposed GSX-Canada project (Singleton Associated Engineering, Ltd. 2002).

New facilities that would be required as part of the BC Gas system expansion include a new compressor station, 11.7 miles of new onshore pipeline, 25.6 miles of marine offshore pipeline across the Strait of Georgia, 1.5 miles of onshore pipeline across Valdes Island, 7.1 miles of offshore pipeline across Stuart Channel, and 6.3 miles of onshore pipeline on Vancouver Island.

ARCO System Alternative

The existing ARCO pipeline is 18 inches in diameter and transports natural gas from Sumas to industrial facilities near Cherry Point. This alternative would use the ARCO pipeline for much of the onshore route. However, the system would need to be extended to allow deliveries to Vancouver Island. Therefore, to provide equivalent volumes of natural gas, the ARCO system would require expansion and construction of new facilities similar to those proposed for the GSX-US project.

Cascade System Alternative

The existing Cascade pipeline is parallel to much of the GSX-US onshore route. The Cascade pipeline is part of an existing distribution (versus transmission) system. Therefore, the pipeline would require significant modification and/or expansion to accommodate volumes equivalent to the GSX-US proposal. Like the ARCO system alternative, the Cascade pipeline would need to be extended to allow deliveries to Vancouver Island.

Orca System Alternative

In April 2000, Westcoast, Cascade, and Puget Sound Energy announced plans to study and evaluate the development of the Orca pipeline to transport natural gas from Sumas to Port Townsend, Washington. Two routes were considered. The first route would run along I-5 to Everett and then cross Puget Sound. The second alternative would run through Whatcom County, and then mostly offshore through San Juan County to Port Townsend.

The Orca system was not designed to transport natural gas to Vancouver Island. However, its proponents claimed the project could be modified to accommodate the volumes and delivery points proposed by GSX-US. In order to serve Vancouver Island, the Orca project would be more than 200 miles long, compared to the entire 84-mile-long GSX project. In September 2000, Orca announced that the project was put on hold because of a lack of firm commitment from potential major customers.

2.2 PROPOSED GSX PIPELINE (ISSUE 1: UPDATED PROJECT DESCRIPTION)

The GSX project consists of two integral parts. The GSX-US portion of the pipeline would transport natural gas from existing pipeline systems at the United States-Canada border near Sumas, Washington, to an interconnection with the GSX-Canada pipeline at Boundary Pass in the Strait of Georgia. The GSX-Canada portion of the pipeline would extend 37.2 miles (27.5 miles offshore and 9.7 miles onshore) from its interconnection with the GSX-US pipeline at Boundary Pass to an interconnection with an existing pipeline operated by Terasen Gas on Vancouver Island south of Duncan. ~~The GSX-Canada project was the focus of an Environmental and Socio-Economic Assessment (ESEIA) that was part (Volume IV) of the application to the National Energy Board of Canada in April 2001.~~ The proposed route of the GSX pipeline is shown in Figure 2-1.

2.2.1 GSX-US

On April 24, 2001, GSX-US filed an application with FERC to construct, install, own, operate, and maintain a new interstate natural gas pipeline and ancillary facilities in the state of Washington. GSX-US's proposed facilities were described in detail in Section 2.0 of FERC's EIS. On October 11, 2001, GSX-US amended its application to FERC to include several minor changes. That amendment included an adjustment of the location of the Cherry Point compressor station and three pipeline route variations—I-5 variation, Percie Road variation, and the Trillium variation. Those changes were examined as alternatives to the original proposed project and were described in detail in Sections 4.4 and 4.6 of the FERC EIS. GSX-US's proposed project (as amended on October 11, 2001) was approved in the FERC's Order issuing a Certificate of Public Convenience and Necessity on September 20, 2002.

Pipeline Facilities

The GSX-US proposal calls for a pipeline to transport natural gas from existing pipeline systems at the United States-Canada border near Sumas, Washington, to an interconnection with a pipeline proposed by GSX-Canada at Boundary Pass in the Strait of Georgia. The system would consist of 47.3 miles of 20- and 16-inch-diameter pipeline.

The onshore portion of the pipeline would connect to the existing Westcoast and Northwest Pipeline systems at the international border at Sumas. From that point, a 20-inch-diameter pipeline would extend 32 miles to the Cherry Point compressor station. From the compressor station, a 16-inch pipeline would extend 1.1 miles to the beginning of the marine portion of the project at the Strait of Georgia shoreline.

The marine or offshore portion of the proposed route would be 13.9 miles long and constructed on a new right-of-way. The first 0.6 mile from the shoreline would be installed using the Horizontal Directional Drill (HDD) method to avoid disturbance of the shoreline in the Cherry Point State Aquatic Reserve. The next 4.8 miles of the pipeline would be installed in a trench so that the top of the pipe would be nearly level with the seafloor. The remaining 8.5 miles of the offshore portion of the pipeline would be laid directly on the seafloor.

Figure 2-1: GSX Pipeline Route

Aboveground Facilities

For the onshore portion of the pipeline, aboveground facilities would include an interconnection facility, a compressor station, and mainline valves. The Sumas interconnection facility would be adjacent to Northwest Pipeline's existing Sumas compressor station. The Cherry Point compressor station would occupy a 12-acre site on Jackson Road near the BP Cherry Point Refinery. Mainline valves and associated permanent access roads would be installed along the pipeline route and would be located within the permanent right-of-way.

Route Modifications

GSX-US is proposing two minor modifications to the pipeline route that were not originally reviewed and approved by the FERC. These modifications include:

Van Buren Road Reroute

A 4,125-foot-long segment of the original pipeline route deviated from the existing Cascade and ARCO Pipeline rights-of-way near the crossing of Johnson Creek and Van Buren Road at milepost (MP) 6.1. Located about 700 feet north of the Cascade Pipeline right-of-way, the original route was farther away from several residences, presented more favorable topography at the HDD exit, and provided shorter construction access across Johnson Creek to the HDD entry location than a route following the existing pipeline right-of-way.

Recent information gathered along the original route west of Van Buren Road indicates a natural spring is present at the HDD exit location that could be adversely affected. To avoid the spring, GSX-US considered lengthening the HDD to the west. However, the most suitable location for the HDD exit is near a nearby gravel pit. GSX-US determined that the likely success of the HDD would be reduced given the geological formation in this area. In order to cross Johnson Creek at a more favorable location, GSX-US is now proposing to continue the route along the Cascade and ARCO Pipeline rights-of-way. In addition to being fully collocated with existing pipeline rights-of-way and avoiding impacts on the spring, the proposed route variation would be more than 1,000 feet shorter than the originally proposed route.

Kickerville Road Reroute

The original pipeline route near MP 28.0 followed property lines and the existing ARCO pipeline right-of-way. Because of the presence of wetlands along the original route and current plans to develop the property as a wetland mitigation site, GSX-US is now proposing to deviate slightly from the ARCO right-of-way and to follow the Burlington Northern Railroad right-of-way. In addition to minimizing wetland impacts, the proposed route variation would be about 670 feet shorter than the originally proposed route. GSX-US currently owns the property that would be affected by the Kickerville Road reroute.

Project Construction (Issue 2: HDD Pipe String Launch Plan)

Section 2.3 of the FERC Final EIS contains a detailed description of the various construction methods that would be used to install the pipeline and related facilities. The HDD method would

be used for installing the pipeline beneath the Cherry Point State Aquatic Reserve. GSX-US would assemble the pipe for the HDD at a pipe string launch site along Gulf Road. The site totals 23.6 acres, of which 8.6 acres would be the 50-foot-wide Gulf Road right-of-way. During use of this site, one lane of roadway south of Henry Road would be left open for traffic. If activities require complete closure of the road for short periods of time, the closures would be scheduled so that minimal impact on traffic would occur. The site-specific plan for launching the HDD pipe string from the Gulf Road site is shown in Figure 2-2.

2.2.2 GSX-Canada

Background

In April 2001, Georgia Strait Crossing Pipeline Limited (GSX-Canada) submitted an application to the National Energy Board of Canada (NEB) for a Certificate of Public Convenience and Necessity to construct and operate the Canadian portion of the GSX project. ~~Action by the NEB on the GSX-Canada project is pending.~~

The application to the NEB included an Environmental and Socio-Economic Assessment (ESEIA), which was prepared in accordance with the guidelines for filing requirements under Section 52 of the National Energy Board Act and the requirements of the Canadian Environmental Assessment Act. It examined the marine and terrestrial environmental settings and socioeconomic setting relevant to the pipeline project, identified the potential environmental and socioeconomic effects of the project, including cumulative effects, and assessed the significance and likelihood of any residual effects after implementation of mitigation measures (GSX-Canada 2001). The discussion of environmental impacts of the GSX-Canada project contained in this Supplemental EIS is drawn primarily from that document.

Pipeline Facilities

The Canadian portion of the GSX project consists of 27.5 miles of marine pipeline and 9.7 miles of onshore pipeline. The project would commence at a point on the international border at Boundary Pass, approximately midway between the east end of Saturna Island (BC) and the west end of Patos Island (Wash., U.S.). ~~The #~~[marine portion of the pipeline](#) would terminate at a point on the Vancouver Island shoreline just north of Manley Creek (Figure 2-1).

The onshore segment of the project would commence at the Manley Creek landfall on Vancouver Island and end at an interconnection with the existing TGVI pipeline near Shawnigan Lake. This portion of the project would consist of 9.7 miles of 16-inch-diameter pipeline. The proposed ~~GSX/Terasen~~[GSX/TGVI](#) interconnection would be adjacent to ~~Terasen Gas's~~[TGVI's](#) existing Shawnigan Lake meter station near the west end of Shawnigan Lake.

Figure 2-2: HDD Pipe String Launch Plan

2.3 TERASEN GAS ALTERNATIVE (ISSUE 3: CANADIAN PROJECT ALTERNATIVES)

2.3.1 Background

TGVI, formerly Centra Gas British Columbia, Inc., provides natural gas transmission and distribution services to more than 76,000 residential, commercial, and industrial customers on Vancouver Island and the Sunshine Coast. In response to VIEC's Application for a Certificate of Public Convenience and Necessity to build a new gas-fired generation facility on Vancouver Island that would be supplied by the GSX pipeline, TGVI developed a proposal for expansion of its current system through compression, pipeline looping, and addition of a liquefied natural gas storage facility. The proposal was submitted as evidence to the BCUC in May 2003 for a hearing on the VIEC proposal. In its proposal, TGVI contended that the proposed expansion of its facilities could defer or avoid the need for the GSX pipeline and be executed at a lower cost. TGVI requested the BCUC to direct BC Hydro to negotiate and enter into a long-term natural gas agreement with TGVI to serve the needs of Vancouver Island. At this writing, TGVI has not submitted an Application for a Certificate of Public Convenience and Necessity to implement its proposal.

2.3.2 Proposed Facilities

TGVI proposes a phased expansion program of upgrades to its system through compression and looping and the construction of an on-island LNG storage facility. The primary components of the program, shown in Figure 2-3, include:

- Expansion of the TGVI system through the addition of new compression facilities between 2005 and 2007.
- Looping of approximately ~~45.7~~45.3 miles of existing pipeline.
- Construction of an on-island 1 Bcf LNG storage facility with liquefaction and vaporization facilities to be in service as early as November 2007.

Compressor Stations

TGVI proposes the addition of up to three compressor stations alone or in conjunction with other facility additions: one station would be located upstream of the town of Squamish, one in Secret Cove on the Sunshine Coast, and the third at Dunsmuir on Vancouver Island. In addition, compression horsepower would be increased at TGVI's existing compressor ~~stations at Coquitlam and Texada Island.~~ station at Coquitlam, with modifications to the Texada Island compressor station.

Pipeline Looping

Pipeline looping ("twinning") would be required on four segments of TGVI's existing pipeline. Those segments include:

- Watershed to Sky Pilot Creek (15.5 miles) is located on the mainland beginning where the existing pipeline emerges from the Greater Vancouver Water District watershed. This loop

would parallel the existing pipeline through the Hixon Creek, Brandt Creek, Indian River, and Stawamus River valleys.

- Sky Pilot Creek to Squamish (3.1 miles) begins where the existing pipeline exits the narrow Stawamus Valley and enters the wider Squamish Valley.
- Sky Pilot Creek to Woodfibre (10 miles) traverses the Squamish River Valley by passing through Squamish, crossing the Squamish River, and climbing over the western valley wall to Woodfibre.
- Texada Island (16.7 miles) commences at the landing of the Secret Cove Marine pipelines and gradually climbs northwest along the center of Texada Island to the Texada Island block valve approximately halfway up the island.

LNG Facility

The TGVI proposal includes a 1 Bcf LNG facility to be located on Vancouver Island. The LNG facility would be connected directly to TGVI's existing transmission pipeline system. Operation of a LNG facility involves liquefaction of natural gas during periods of low demand, typically in warmer weather periods (up to 200 days of the year), followed by delivery during periods of high demand, typically during colder winter weather.

After it is purified, clean gas is sent to a refrigeration unit where the gas is condensed to its liquid state for storage. After liquefaction, the LNG is stored in a double-shell, insulated tank. A 1 Bcf tank would be approximately 150 feet in diameter and reach a height of approximately 150 feet.

Requirements for the operational area depend on the capacity of the operational facilities and equipment, as well as the topography of the site. For a level site, the operational area for a 1 Bcf LNG storage tank and associated facilities would be approximately 10 acres. A buffer zone would surround the operational area and separate the facility from adjoining properties and related public activities. This ensures a high level of public safety, regardless of changes to land use outside the buffer zone. The size of the buffer zone, as prescribed by Canadian regulations, is directly related to the design and capacity of the LNG storage tank and the design of the secondary containment area. With the buffer included, a minimum of 300 acres would be required for the site.

TGVI has undertaken initial siting studies for the LNG facility on Vancouver Island. More information on those preliminary studies is contained in TGVI's evidence submitted to the BCUC (Terasen Gas 2003).

2.4 NO ACTION ALTERNATIVE [\(ISSUE 3: CANADIAN PROJECT ALTERNATIVES\)](#)

Under the No Action Alternative, the GSX project (GSX-US and GSX-Canada) would not be constructed. The FERC EIS on the GSX-US project included a general discussion of alternatives that could be implemented under this scenario including energy conservation; use of alternatives fuels such as oil, wood, or coal; solar power; wave energy; and upgrading existing electric transmission cables serving Vancouver Island (FERC 2002). Since publication of the FERC

Figure 2-3: Terasen Gas System Proposal

Final EIS, other alternatives have been proposed that could help reduce the demand for natural gas on Vancouver Island if the GSX project is not constructed. One of these is the NorskeCanada Energy Project.

2.4.1 NorskeCanada Energy Project

Background

Norske Skog Canada Limited (NorskeCanada) owns three integrated pulp and paper mills on Vancouver Island at Crofton, Campbell River, and Port Alberni. A fourth mill is located at Powell River on the British Columbia mainland. For some time, NorskeCanada has been interested in taking advantage of power generation opportunities at its mill sites. In late 2001, it approached BC Hydro to identify opportunities for working together on major projects. NorskeCanada was not able to reach agreement with BC Hydro on any major projects or to agree on the economic requirements for a successful project.

Following the government's referral of the VIGP to the BCUC, and BC Hydro's application to the BCUC in March 2003, NorskeCanada has been working to complete the necessary engineering and economic analyses to support a proposal it believes would reduce demand for natural gas and produce energy at a lower cost than VIGP.

Proposed Facilities

NorskeCanada proposes to install new electrical power cogeneration facilities at its three Vancouver Island pulp and paper mills, together with energy conservation and demand management projects. The NorskeCanada Energy Project, with a total winter power capacity of approximately 364 megawatts (MW), is intended to meet power demand growth from other Vancouver Island electricity consumers and compensate for BC Hydro's declining transmission capacity from the BC mainland to Vancouver Island.

The NorskeCanada project calls for power generation and power demand reduction projects at NorskeCanada's three pulp and paper mills on Vancouver Island (Figure 2-4):

- Crofton Pulp and Paper Mill located near Duncan
- Port Alberni Paper Mill located in Port Alberni
- Elk Falls Pulp and Paper Mill located north of Campbell River

The primary components of the NorskeCanada proposal are turbine cogeneration, heat recovery, and demand management.

Gas and Steam Turbine Cogeneration

The new power generation facilities proposed for installation at the mills would be a combination of gas turbine and steam turbine cogeneration facilities integrated with the mill utilities. Cogenerated steam is produced by recovering heat from the gas turbine exhaust, and would replace steam currently produced in gas-fired boilers. The gas, formerly used in the gas-fired boilers to generate steam, would be used to generate both steam and power, resulting in more

Figure 2-4: NorskeCanada Mill Sites

efficient use of the gas fuel. At the Crofton mill, a combination of gas and steam turbines would generate 107 MW. At Elk Falls, a combination of gas and steam turbines would generate 104 MW. At Port Alberni, a new gas turbine would generate 45 MW.

Heat Recovery

The second component of the NorskeCanada proposal would be a new thermomechanical pulp (TMP) facility to be installed at Elk Falls. TMP is a mechanical pulp produced by using large amounts of electrical energy in refiners that convert wood chips into pulp suitable for paper. The new TMP plant would result in reduced energy usage and increased steam production through an efficient heat recovery system. This steam would supplement the mill's existing steam system and allow for increased steam turbine power production.

Each TMP line would include a heat recovery system to collect steam from each of the refiners for reprocessing in a reboiler. The new lines would reduce the refining energy by 15 MW with no significant impact on pulp quality. The heat recovery systems would produce clean steam that could be used elsewhere in the mill. This will allow an additional 13 MW of power to be produced by the steam turbines in the mill. The combined net reduction of electrical power consumed by the TMP mill will be approximately 28 MW.

Demand Management

The new TMP facility would allow NorskeCanada to institute aggressive demand management. The increased TMP capacity would allow NorskeCanada to produce its daily requirement for tons of pulp by using periods of non-peak power demand on Vancouver Island and shutting down facilities during periods of peak power demand. Using this operating strategy, NorskeCanada would have the ability to free up significant power to the grid during peak power demand periods. For the purpose of this proposal, an operating scenario was developed that would allow transfer of 60 MW to the grid during peak demand periods. An additional 20 MW could be saved using load coordination among the three Vancouver Island mills.

Chapter 3

Affected Environment, Significant Impacts, and Mitigation Measures

3. AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS, AND MITIGATION MEASURES

3.1 INTRODUCTION

3.1.1 Ecology Review

In December of 2002, the Washington Department of Ecology initiated a process to evaluate the suitability of the project's NEPA Final EIS in meeting the environmental review requirements under SEPA. To determine whether the project's existing NEPA EIS could be adopted to meet the requirements of SEPA, Ecology was required to conduct an independent review of the NEPA document.

As a result of that process, Ecology determined that 39 issues in the NEPA Final EIS were not adequately addressed to satisfy SEPA requirements. The list transmitted to GSX-US by Ecology on July 28, 2003, reflected the issues that would need to be addressed in a Supplemental EIS.

For this Supplemental EIS, each of the 39 issues is assigned to a corresponding topic or element of the environment under SEPA. Those issues provide the framework for the environmental analyses in the Supplemental EIS. The topic areas are:

- Project Description (addressed in Chapter 2)
- Geology and Soils
- Surface Water
- Groundwater
- Plants and Animals
- Reliability and Safety
- Land and Shoreline Use
- Socioeconomic Conditions
- Cultural and Historic Resources
- Traffic and Transportation
- Air Quality
- Noise

3.1.2 Chapter Organization

Each section of this chapter on affected environment, significant impacts, and mitigation measures is organized in the following manner:

Element of the Environment

The first title that appears at the beginning of each section identifies the element of the environment for which issues have been identified by Ecology for response.

Applicable Sections in FERC Documents

This section lists references to all applicable sections of the FERC Final EIS and supporting documents where the reader may review the original analyses. It also refers the reader to applicable sections of the Environmental Report that accompanied GSX-US's original application to FERC.

Issue Summary

This includes a summary of the issue, followed by Ecology's requirement for how the issue must be addressed in this Supplemental EIS.

Affected Environment

If Ecology's recommendation calls for additional information on existing conditions, that information will be included in this section. Depending on the scope of the response, this section may also include information for the GSX-Canada portion of the project. If Ecology's recommendation does not call for additional information on the affected environment, this section will state, "No additional analysis required."

Impacts

If Ecology's recommendation calls for additional analysis or clarification of potential impacts, that information will be included in this section. Depending on the scope of the response, this section may also include information for the GSX-Canada portion of the project, the Terasen Gas Alternative, and the No Action Alternative. If Ecology's recommendation does not call for additional information on potential environmental impacts, this section will state, "No additional analysis required."

Mitigation Measures

If Ecology's recommendation calls for additional information on measures to mitigate potential environmental impacts, that information will be included in this section. Depending on the scope of the response, this section may also include information for the GSX-Canada portion of the project, the Terasen Gas Alternative, and the No Action Alternative. If Ecology's recommendation does not call for additional information on mitigation measures, this section will state, "No additional analysis required."

Significant Unavoidable Adverse Impacts

If Ecology's recommendation calls for additional analysis or clarification of environmental impacts that could be significant, unavoidable, and adverse as defined under SEPA, that information will be included in this section. Depending on the scope of the response, this section may also include information for the GSX-Canada portion of the project, the Terasen Gas Alternative, and the No Action Alternative. If Ecology's recommendation does not call for additional information on significant, unavoidable, adverse impacts, this section will state, "No additional analysis required."

3.11 AIR QUALITY

3.11.1 Applicable Sections in FERC Documents

Please refer to Section 3.12 in the FERC Final EIS and Resource Report 9, Air and Noise Quality, in Exhibit F-1 of GSX-US's original application to FERC.

3.11.2 Issue [37: Wind Patterns](#)

Issue Summary

Description of Problem

The air quality section does not discuss wind patterns in the project area. Therefore, it is not possible to determine if specific residential locations may be more susceptible to emissions than other locations.

Ecology Requirement

Include an analysis and discussion of wind patterns for the project area and surrounding region in the environmental review.

Affected Environment

Predominant wind directions in the Cherry Point area are from the south to south-southwest and from the east-northeast. On an annual basis, winds from the south and south-southwest occur with a frequency of about 24%. Winds with an easterly or east-northeasterly component occur about 21 of the time and winds from the west through northwest occur about 20% of the time. Figure 3-5 shows a cumulative wind rose that represents the distribution of the wind direction frequency and wind speed class on an annual basis at Cherry Point for each year from 1995 through 2001 (BP West Coast Products, LLC 2003).

Winds from the west-northwest through northwest become more prominent during the summertime as the Pacific sub-tropical high-pressure zone moves farther north in the eastern Pacific and influences the summertime wind pattern at the site. Wintertime winds tend to have more of a southerly component, as influenced by the frequent passage of migratory storm systems from the west.

Winds with easterly components are frequent and occur during periods of high atmospheric pressure over eastern British Columbia and eastern Washington that causes an outflow of winds through the Fraser River Canyon. Wind speeds can vary significantly, with the highest recorded hourly average wind speed at BP's Cherry Point monitoring site of 33.6 miles per hour in November 1998.

Figure 3-5 Cherry Point Wind Rose



~~According to data from the National Oceanic and Atmospheric Administration's monitoring program (1994-1999), the average wind speed over a six-year monitoring period was 9 miles per hour (mph). Over that six-year period, the month of January had the highest average wind speed of 9.7 mph and August had the lowest at 7.9 mph. Prevailing wind direction over the monitoring period was 190°. Wind roses from the Bellingham International Airport show a similar trend with the wind blowing from the south to north between the years of 1991-1995.~~

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.11.3 Issue [38: Dispersion Mapping](#)²

Issue Summary

Description of Problem

Under the heading State and Local Regulations, the air quality section of the Final EIS states that, “GSX-US performed preliminary dispersion modeling that indicates impacts below the ASILs.” However, no dispersion mapping is presented.

Ecology Requirement

Include dispersion mapping in the environmental review so that destination areas for project emissions may be identified.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

GSX-US

With regard to the GSX-US project, WAC 173-400-110 states that an emission source is subjected to the Prevention of Significant Deterioration (PSD) permitting program if the new installation is either a major modification to an existing major source or is a major source by itself. Regulated pollutants (nitrogen oxides, carbon monoxide, sulfur dioxide, volatile organic compounds, or particulate matter less than 10 micrometers in size) of major sources have the potential to emit pollutants above what is allowed. Each component (turbine, generator, dehydration unit, and boiler) of the GSX Cherry Point compressor station was modeled and compared to the PSD threshold of 250 tpy. If results showed that the regulated pollutants were above the PSD threshold, further analysis would be necessary. However, results showed that each component of the compressor station is below the PSD major source threshold of 250 tpy. Therefore, the GSX Cherry Point compressor station is not subject to the requirements of the PSD program, and in turn no dispersion modeling is required.

GSX-Canada

In its July 2003 ruling on the GSX-Canada project, the Joint Review Panel concluded that any air quality emissions resulting from the project would be minimal. With respect to greenhouse gases, the panel concluded that, although emissions from the project are very minor in comparison to overall emissions on Vancouver Island, they would contribute to climate change by combining and interacting with emissions from other present and future sources from around the world. However, the panel relied on Environment Canada’s statement that because emissions

resulting from new natural gas pipeline and energy generation projects have been factored into the Government of Canada's outlook, the GSX-Canada project should not compromise Canada's ability to achieve its Kyoto Protocol target.

Terasen Gas Alternative

The proposed compressor stations would require air emission permits under Section 10 of the Provincial Waste Management Act. Legislative authority to issue air emission permits for such facilities rests with the Oil and Gas Commission. TGVI plans to use "dry" low nitrogen oxide (DLN) technology. The DLN technology easily achieves these permit requirements. Such permits and/or permit modifications typically take approximately four months to process, and can be done at the same time with other planning and construction activities (GSX-Canada Application, Appendix D, pg. D-8).

At the LNG facility, equipment that uses hydrocarbon fuel would meet regulatory air emission guidelines. However, the primary compression and pumping equipment at the facility would be electric, thereby minimizing air emissions (GSX-Canada Application, Appendix F, pg. F-6).

No Action Alternative

NorskeCanada does not expect any material impact on the air quality of these communities as a result of the cogeneration facilities. All ambient air quality parameters are expected to continue to meet provincial and federal objectives.

The installation of the cogeneration facilities at the Crofton, Elk Falls, and Port Alberni mills would result in some increased air and water emissions. The Elk Falls and Port Alberni gas turbines would normally use natural gas for firing, but would have distillate capability in the event of natural gas curtailments. Key air emissions would be nitrogen oxides, carbon monoxide, sulfur dioxide, carbon dioxide, volatile organic compounds, ammonia, and low levels of fine particulate.

Under the project proposal, fossil fuel-fired boilers at Crofton, Elk Falls, and Port Alberni would be on standby for all but 10 to 12 days per year when they are required during annual shutdowns of each mill's hog fuel-fired power boilers. This standby status for the fossil fuel-fired boilers would offset some of emissions generated by the new gas turbines installed at each site.

Incremental air emissions and effluent discharges from the infrastructure would be distributed across NorskeCanada's three Vancouver Island pulp and paper facilities. The distribution of these emissions along with the standby status of existing fossil fuel boilers and the lower quantity of natural gas required by the initiative mean that the impact on ambient air quality is almost certainly lower than that modeled for VIGP.

Greenhouse gas emissions estimates are based on the total use of natural gas and distillate fuels at each of the mills. Overall, the net effect of project implementation from its Vancouver Island mills would be an increase of 660,336 tons of carbon dioxide equivalent per year. This represents only 80% of the planned increase with the VIGP (NorskeCanada 2003).

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

Additional information on air quality mitigation is not available.

No Action Alternative

NorskeCanada anticipates use of DLN gas turbines in conjunction with proven emissions controls to meet both the provincial and federal air emissions standards relating to the operation of gas-fired turbogenerators. Plans call for the installation and operation of selective catalytic reduction technology that uses ammonia to convert exhaust gas nitrogen oxides into harmless nitrogen and water. DLN duct burners would also be incorporated into each of the facilities for intermittent operation.

NorskeCanada's 2002 greenhouse gas emissions were 59% below 1990 levels, which surpasses Canada's commitment to the Kyoto Protocol of a 6% reduction below 1990 levels.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts have been identified.

3.10 TRAFFIC AND TRANSPORTATION

3.10.1 Applicable Sections in FERC Documents

Please refer to Section 3.93 of the FERC Final EIS and Resource Report 5, Socioeconomics, in Exhibit F-1 of GSX-US's original application to FERC.

3.10.2 Issue [36: Analysis of Traffic Impacts](#)

Issue Summary

Description of Problem

The Final EIS does not contain any meaningful analysis of traffic impacts. Potential traffic impacts associated with roads and railroad crossings have not been included. Without information about traffic and train volumes that would be affected by the pipeline crossing, potential traffic impacts cannot be discussed. Additionally, local transportation plans, programs, and capital projects are not mentioned. No estimate is provided of the number of trips or the distribution/assignment of vehicle trips to the transportation network, nor is a cumulative impact analysis provided.

Ecology Requirement

Include a thorough discussion of auto and train traffic impacts associated with construction and operation of the project in the environmental review.

Affected Environment

Existing Road Network

The local highway system near the proposed route through Whatcom County is well developed. The principal roadway in the county, I-5, links Bellingham with British Columbia to the north and Seattle and the Puget Sound area to the south. SRs 9, 539, 542, 544, and 548 traverse the rest of Whatcom County. Most public roads near the proposed route are paved. However, none of the roads has curbs, gutters, or sidewalks.

SR 548 was recently improved from I-5 to Blaine Road through the addition of a pavement overlay and improved pavement markings and traffic signs. The roadway has 11-foot-wide lanes, 8-foot-wide paved shoulders, drainage ditches, and wire fences on both sides. The posted speed limit is 50 mph.

In addition to state routes, other public roads in the pipeline vicinity are county roads such as Grandview Road, which is west of Blaine Road. The county roads in the area are principally two-lane rural roads. The speed limits are generally 50 mph, except in more developed areas such as the Birch Bay area, and near Blaine, Ferndale, and the I-5 interchanges, where the speed limits are 35 mph.

Impacts

GSX-US

Construction

Table 3-3 lists the anticipated workforce, schedule, and construction duration for the major components of the GSX-US project construction.

Table 3-3: Estimated Construction Workforce for the GSX Project

Facility	Size of Workforce	Schedule		Duration (days)
		Start	End	
Pipeline Facilities Onshore	225 to 300	August 2004	October 2005	306 (includes winter break approx. Oct 2004 – Apr 2005)
Cherry Point Compressor Station	80 to 100	March 2005	October 2005	155
Sumas Interconnect Facility	20 to 30	May 2005	October 2005	111
Total	325 to 430			

Source: Williams Gas Pipeline Company 2003

Construction Workforce: Temporary impacts on traffic during project construction could result from the daily commuting of the construction workforce to the construction site. GSX-US estimates that approximately 100 people would be working on the onshore pipeline at any one time. The majority of these individuals would travel to the Portal Way Staging Area from various locations early in the morning and return in the evening during non-peak traffic hours. Table 3-4 shows the anticipated routes construction workers would take to reach the Portal Way Staging Area from various locations in the region (Williams Gas Pipeline Company 2003).

Road Crossings: Construction at road crossings could also affect traffic. Road crossings are installed using either a boring technique or an open cut. Major paved roads generally would be crossed by boring or drilling underneath the road. Little or no disruption of traffic would result at road crossings that are bored or drilled. The open-cut construction method would be used across lightly traveled paved or graveled roads and unimproved rural dirt roads. GSX-US will attempt to maintain at least one lane of traffic with detours around construction, plating over the open portion of the trench, or other suitable methods when open cutting a road. However, in a worst-case scenario, this construction method may require the road to be closed for about 24 hours. Traffic control measures such as flaggers, warning signs, lights, and barriers would be used during construction to ensure safety and to minimize traffic congestion.

GSX-US would use existing roads to provide access to the construction right-of-way. In most cases, the existing roads are paved or graveled and would not require improvement for access. In some cases, narrow roads or two-track roads would be improved to provide suitable access for construction. GSX-US has identified 27 roads that, if modified, would result in approximately 8.8 acres of disturbance. Table 3-5 lists the name and general location of proposed road crossings and identifies the type of improvements that would be required at each road.

Table 3-4: Anticipated Construction Worker Travel Routes

Destination	Worker Origin					Sumas
	Bellingham	Birch Bay	Blaine	Ferndale	Lynden	
Portal Way Staging area	North on I-5 to exit 270, north on Portal Way	East on Birch Bay – Lynden Road; north on Portal Way	South on Portal Way	North on Portal Way or I-5 to exit 270, north on Portal Way	West on Birch Bay – Lynden Road; north on Portal Way	Highway 9 to 546 to Bay – Lynden Road; north on Portal Way
Gulf Road Staging area ¹	North on I-5 to exit 262, west on Mt. View, Rainbow and Henry Roads to Gulf Road	South on Blaine Road, east on Grandview, south on Kickerville, west on Henry	South on Blaine Road, east on Grandview, south on Kickerville, west on Henry	West on Mt. View, Rainbow and Henry Roads to Gulf Road	West on Lynden – Birch Bay, south on Kickerville, west on Henry Road	Highway 9 to 546 to 539, west on Lynden – Birch Bay, south on Kickerville, west on Henry Road
Sumas Staging area	Highway 539 to 546 to 9	East on Lynden – Birch Bay to 539 to 546 to 9	South on 548, Portal Way or I-5 to Birch Bay route	West Axton to 539 to 546 to 9	East on 546 to 9	Rock Road, Highway 9 and local roads
Ferndale Staging area	North on I-15 to exit 263, south on Portal Way	East on Lynden – Birch Bay to I-5 or Portal Way, south to Ferndale	South on I-5 or Portal Way to Ferndale	Local roads	South on 539, west on West Axton	Highway 9 to 546 to 539, west on West Axton
Port of Bellingham	city roads	South on I-5 to city roads	South on I-5 to city roads	South on I-5 to city roads	South on 539 to city roads	South on 9 to 546 to 539 to city roads

Source: Williams Gas Pipeline Company 2003

Table 3-5: Major Roads Crossed by the GSX Project and Proposed Crossing Method

Milepost	Road/Railroad Name	Proposed Crossing Method
0.01	Jones Road	Open Cut
0.67	Rock Road	Open Cut
1.54	Hillview Road	Open Cut
1.71	Reese Hill Road	HDD (with Saar Creek)
2.42	Sumas Road	Open Cut
2.90	Morgan Road	Open Cut
2.92	Hovel Road	Open Cut
4.41	Garrison Road	Bore
5.42	High School Road	Open Cut
6.49	Van Buren Road	Bore
7.58	Trapline Road	Open Cut
9.64	Clay Road	Open Cut
10.20	Northwood Road	Open Cut
10.96	Bloom Road	Open Cut
11.86	Bender Road	Open Cut
12.37	Depot Road	Open Cut
12.88	Benson Road	Open Cut
13.38	Double Ditch Road	Bore
13.89	Guide Meridian Road	Bore
14.66	Jackman Road	Open Cut
15.18	Axling Road	Open Cut
15.96	Weidkamp Road	Open Cut
16.97	Markworth Road	Open Cut
18.99	West Badger Road	Bore
19.77	Sunrise Road	Open Cut
21.00	Loomis Trail Road	Open Cut
21.70	Delta Line Road	Open Cut
22.24	Stein Road	Open Cut
22.81	Custer School Road	Open Cut
24.06	Valley View Road	Open Cut
24.62	Interstate 5	HDD
24.79	Portal Way	Bore (with railroad on west side)
25.16	Birch Bay Lynden Road	Bore
26.26	Arnie Road	Open Cut
26.83	Ham Road	Open Cut
28.13	Kickerville Road	Open Cut
28.48	Bay Road	Open Cut
30.28	Blaine Road	Bore
31.02	Safsten Road	Open Cut
31.30	Jackson and Grandview Roads	Bore
31.82	Brown Road	Open Cut
32.51	Aldergrove Road	Open Cut

Source: Williams Gas Pipeline Company 2003

Construction Vehicle Traffic: The existing roadway system in the project area could be temporarily affected by the movement of construction vehicles and delivery of construction equipment and materials to pipeline site. GSX-US consulted with the Whatcom County Traffic Engineer to identify areas where construction traffic impacts could occur. The intersection of

Morgan, Hovel, and Telegraph roads was identified as an area where congestion could potentially become an issue during construction (Vandersypen, pers. comm., 2003).

Four contractor yards would be used on a temporary basis to support construction activities.

- The Sumas Pipe Storage Yard is a 13.2-acre site approximately 0.5 mile west of Sumas. The site has been partially graded for development and has been previously used for storage and staging during pipeline construction projects. The yard is adjacent to a railway siding used for shipping across the United States-Canada border and would be accessible from SR 9.
- The Portal Road Yard is a 22.6-acre site approximately 4 miles southeast of Blaine. The site is located between I-5 and Portal Road.
- The Swift Yard is an 18.7-acre site currently used as a railway siding and is adjacent to Portal Road approximately 3 miles southeast of Blaine.
- The Ferndale Yard is about 0.25 mile north of Ferndale. The 14.1-acre site has a railway siding along its western edge and is accessible to I-5 via an adjacent exit ramp and bridge.

Approximately 80 workers would be transported to the job site and back again at the end of the day on crew buses. The remaining individuals (approximately 20 pickups) would be moving from site to site on the construction right-of-way using local roads and highways on a daily basis. It is expected that these vehicles would make two to three daily trips from the Portal Way Staging Area to various areas along the construction project as construction occurs at multiple locations.

Approximately three to four pipe string trucks would be making two roundtrips per day from the Portal Way site to the construction right-of-way for the duration of project construction. It is also expected that water trucks and dump trucks would make as many as six trips per day (on average) to deliver materials and equipment to the right-of-way. Once a vehicle leaves the Portal Way yard, its exact route would vary depending on the current location of construction activity. Whatcom County has not identified any restrictions on the access roads that would affect project construction (Williams Gas Pipeline Company 2003).

Overall, the number and frequency of construction vehicle trips would be low on any particular roadway at any one time because construction would move sequentially along the project right-of-way. Trips by vehicles that would visit the right-of-way on a regular basis (e.g., pickup trucks, crew bus) would be distributed along the length of the pipeline route as the pipe string is installed and construction activity progresses to a different part of the right-of-way.

Cumulative Impacts

The only other area of concern identified by the County Traffic Engineer is the potential cumulative impact of construction traffic from simultaneous construction of the BP Cherry Point Cogeneration Project (at the BP Refinery) and GSX pipeline construction in the same area (Vandersypen, pers. comm., 2003). GSX-US construction activities that could overlap with construction at the BP site includes the HDD site, the pipeline between the HDD site and the Cherry Point compressor, the Cherry Point compressor itself, the section of pipeline east of the

compressor station along Grandview Road, and assembly of the HDD pipe string at the Gulf Road launch site.

The Applicant for BP Cherry Point has estimated the number of vehicle round trips each month during construction, assuming mobilization in February 2004 through December 2005. The average weekday construction trips are estimated to be 650. The average weekday peak construction trips are estimated to be 1,200 (Duke/Fluor Daniel 2001). This is equivalent to approximately 10,300 monthly round trips during the peak construction period.

While specific routings are not known at this time, truck traffic would most likely use the principal arterials or roadways from material sources to the cogeneration facility. Potential impacts could affect roadway and/or intersection operations thereby worsening levels-of-service (LOSs) or increasing queue lengths or delays. The traffic analysis for the BP Cherry Point project estimates that the SR 548/Portal Way intersection would operate at LOS F during the PM peak hour during peak construction conditions without any mitigation.

Operation

GSX-US estimates it would hire up to two additional permanent employees to satisfy the day-to-day operation requirements of the completed pipeline project. These employees would be hired and trained at the Sumas District work location and would spend the majority of their time at the Cherry Point compressor station. Because only minimal traffic would be associated with operation and maintenance of the completed pipeline, no significant operational traffic impacts are expected.

GSX-Canada

Construction

At peak construction, the GSX-Canada project would employ approximately 240 workers. Four to five buses would bring workers to the site and then return to pick up workers. This would result in 8 to 10 one-way traffic movements per day from the marshalling area to the project site. In addition, up to 400 one-way movements would occur to and from the marshalling area. Supervisors and selected other workers who need their vehicle during the day may travel to the site in vehicles such as light trucks. It is anticipated that a maximum of 20% of the workforce would use independent vehicles. This would result in a maximum of 80 one-way vehicle trips per day. Buses and vehicles coming to the project site would park on the right-of-way.

The contractor would use from three to six stringing trucks, with each truck carrying from 10 to 12 40-foot or 42-foot joints of NPS16 pipe. This would result in from 200 to 254 one-way trips to and from the right-of-way to the stockpile site. These trips would be distributed over the entire construction period.

Operation

No additional analysis required.

Terasen Gas Alternative

No traffic impact analyses are available for the Terasen Gas Alternative.

No Action Alternative

No traffic impact analyses are available for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

Construction

GSX-US would prepare and implement a Construction Transportation Management Plan (CTMP). Components of the CTMP would include, but not be limited to, the following:

- Construction employees would share rides or be bused to the construction right-of-way. To reduce overall traffic, construction workers would leave personal vehicles at the contractor's yard and share rides or ride buses to the construction right-of-way.
- Construction employees would commute during off-peak hours. Because pipeline construction work is generally scheduled to take advantage of all daylight hours, workers would commute to and from the site in off-peak hours.
- Construction equipment would remain onsite during construction of the pipeline. In addition, most equipment would be located on the pipeline right-of-way and would not affect traffic on local roads after its initial delivery to the construction site.
- GSX-US would require construction workers to use contractor yards as the primary parking area for their personal vehicles. Workers would be transported from contractor yards by buses provided by the contractor. Transporting workers by bus would reduce traffic and eliminate the need for personal vehicles to be parked along the right-of-way or along roadsides near the right-of-way.
- When a pipeline crossing requires an open cut of a road, GSX-US would attempt to maintain at least one lane of traffic with detours around construction, plating over the open portion of the trench, or other suitable methods. Traffic control measures such as flaggers, signs, lights, and barriers would be used during construction to ensure safety and to minimize traffic congestion.
- GSX-US would apply for all necessary permits to cross and/or use roads.
- To minimize disruption by construction traffic, GSX-US will use contractor yards to ensure adequate roadway access to pipeline construction areas. Construction equipment would most likely be transported to the area via I-5 and delivered to the construction right-of-way on low-boy semi-trucks. Some equipment would be stored at the Portal Way site. This equipment would be dropped off in one location and moved in a linear direction along the

construction right-of-way. The amount of equipment moving from site to site would be minimal.

- Construction hours would be strictly adhered to as follows:
 - Marine: 24-hour-a-day operations.
 - All HDDs, including Cherry Point: from 10 to 12 daylight hours of operation to 24-hour-a-day operations during some phases.
 - Onshore construction: an average of 10 to 12 daylight hours of operation with a small number of cases in which this would be exceeded.
- GSX-US and its contractors would comply with local road weight limits and restrictions and would keep roads free of mud and other debris that may be deposited by construction equipment. Track-driven equipment would cross roads on tires or equipment pads to minimize road damage. Any roadways damaged by construction activities would be repaired.

Operation

No mitigation measures required.

Terasen Gas Alternative

No traffic impact analyses are available for the Terasen Gas Alternative.

No Action Alternative

No traffic impact analyses are available for the NorskeCanada proposal.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts have been identified.

3.9 CULTURAL AND HISTORIC RESOURCES

3.9.1 Applicable Sections in FERC Documents

Please refer to Section 3.10 in the FERC Final EIS and Resource Report 4, Cultural Resources, in Exhibit F-1 of GSX-US's original application to FERC.

3.9.2 Issue [29: Eligibility of Prehistoric Sites](#)

Issue Summary

Description of Problem

Eligibility status of prehistoric site 45WH536 is equivocal because the Final EIS states differences in opinion between the cultural resources contractor and Office of Archaeology and Historic Preservation (OAHP). If the site is eligible, what steps will be taken to protect it from adverse impacts? What are the results, if any, of the proposed survey of the remaining 4.3 miles of corridor? Moreover, what is the status of evaluation at the other two prehistoric sites and one historic site where landowner permission was being sought prior to testing?

Ecology Requirement

Clearly state the eligibility status of prehistoric site 45WH536 in the environmental review and, if it is eligible for listing on the National Register of Historic Places (NRHP), the steps to be taken to protect it from adverse impacts. Also, state in the environmental review whether a pedestrian survey was conducted and what the results were for the remaining 4.3 miles of pipeline corridor for which landowner permission was being sought. Determine eligibility status for the remaining two prehistoric sites and one historic site for which testing was recommended pending landowner permission.

Affected Environment

Although the National Register status of prehistoric sites 45WH536, 45WH535, and 45WH534, and historic site 37-15 have not been resolved, GSX-US will treat the sites as if they are eligible for listing and will attempt to avoid the resources. If avoidance is not feasible, GSX-US will consult with OAHP and affected Indian tribes to determine the sites' significance and formulate treatment plans.

GSX-US has surveyed segments of the pipeline corridor that were not assessed during the 1999 and 2000 work because of landowner refusals. Results of these surveys and OAHP concurrence should be included in this document when they are completed.

Impacts

Proposed Action

GSX-US

Based on the current design for the GSX-US project, cultural resources that may be eligible for listing in the National Register will be avoided. Therefore, no significant adverse impacts are expected. However, the results of additional archaeological surveys have not been compiled. The results of these studies may identify additional resources in the project area.

GSX-Canada

On the GSX-Canada project, the recent ruling by the NEB Joint Review Panel noted that a Heritage Resource Impact Assessment for the previously unsurveyed portions of the terrestrial route had not yet been completed. Therefore, GSX-Canada must file with the NEB for approval the results of that survey and proposed mitigation measures. The final Underwater Archaeological Assessment was also filed late in the process and had not been provided to the provincial authority responsible for archaeology. Therefore, GSX-Canada must file with the NEB for approval any comments and recommendations on the underwater assessment from the British Columbia Ministry of Sustainable Resource Management, Archaeology Branch.

GSX-Canada's assessment indicated that both the terrestrial and marine portions of the GSX-Canada route are currently used for traditional purposes, and include harvesting of marine resources, hunting and possibly plant harvesting. GSX-Canada reached an agreement on the concerns First Nations had previously expressed regarding their interests. The panel concluded that it is unlikely there will be significant adverse effects to the resources used for traditional purposes, and that it is also unlikely that the project would cause significant adverse effects to the current use of lands and resources for traditional purposes by aboriginal persons (National Energy Board 2003).

Terasen Gas Alternative

Terasen Gas has not undertaken any detailed analyses of potential impacts on cultural, archaeological, or historic resources resulting from its proposal. First Nation consultation is required as part of the Crown Land acquisition process and is considered a component of meeting the air emissions permit consultation requirements. Typically, the consultation process is comprised of three key components:

- Stakeholder and First Nations identification
- Project notification
- Communications activities

Typically, to complete these efforts the Applicant undertakes a public consultation process that includes public notices in local newspapers, open houses, mail outs and door-knocking campaigns as necessary to ensure that the public is aware of activities and is provided adequate

opportunity to comment. This process may take two to six months to complete. This consultation work would be documented and submitted in support of the BCUC approval processes. First Nation consultation is often an on-going process throughout the project (NorskeCanada 2003).

No Action Alternative

NorskeCanada has not undertaken any detailed analyses of potential impacts on cultural, archaeological, or historic resources resulting from its proposal. As with the Terasen Gas proposal, First Nation consultation is required as part of the Crown Land acquisition process and is considered a component of meeting the air emission permit consultation requirements.

Mitigation Measures

Proposed Action

Should the pipeline route change and make avoidance of cultural sites infeasible, GSX-US should consult with OAHF and affected Indian tribes. If the resources are determined to be National Register-eligible, a treatment plan should be devised.

Terasen Gas Alternative

As part of its ongoing operational strategy, TGVI has developed Memoranda of Understanding (MOUs) with most First Nations in its operational area. While these MOUs do not contain specific commitments, they reflect TGVI's general commitment to working with local First Nations to the betterment of both. TGVI will undertake all First Nation consultation necessary to ensure successful completion of these facilities.

No Action Alternative

No specific mitigation measures have been identified for the NorskeCanada proposal. However, it would have to undertake First Nation consultation necessary to secure approval of its proposed facilities.

Significant Unavoidable Adverse Impacts

With adequate implementation of protective measures, no significant unavoidable adverse impacts would be anticipated.

3.9.3 Issue [30: Plan for Unanticipated Discovery](#)²

Issue Summary

Description of Problem

The Final EIS states that a plan has been submitted “in the event that any unanticipated historic properties or human remains are encountered during construction.” However, no details on protocol have been provided.

Ecology Requirement

Provide a summary of the plan for unanticipated discovery in the environmental review and specify that this would also be applicable for prehistoric and ethnohistoric properties.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

GSX-US

GSX-US has produced an Unanticipated Discovery Plan that is included in Resource Report 4, Cultural Resources, in Exhibit F-1 of GSX-US’s original application to FERC. The plan was accepted by FERC. However, the plan has yet to be reviewed by OAHP and affected Indian tribes and incorporated into a Memorandum of Agreement.

The Unanticipated Discovery Plan proposes that in the event any potential historic properties are discovered:

- Work in the vicinity of the find would be stopped and physical barriers be installed to protect the resource.
- FERC, OAH, affected Indian tribes and First Nations, GSX-US's archaeological contractor, and the landowner would be contacted.
- The archaeological contractor would evaluate the discovery in consultation with the agencies, Indian tribes, and First Nations and prepare a report with treatment recommendations for their concurrence.
- Construction would resume in the area after the treatment plan had been approved, implemented, and completed.
- If human burials are discovered, the county sheriff and coroner would be contacted; depending on the nature of the burial, GSX-US would follow appropriate state procedures for non-Indian burials or would consult with the agencies, Indian tribes, and First Nations on treatment and accommodate to the extent feasible the concerns and requests of the affected Indian tribes and First Nations, in addition to the above procedures.

GSX-Canada

Refer to Issue 1.

Terasen Gas Alternative

Refer to Issue 1.

No Action Alternative

Refer to Issue 1.

Significant Unavoidable Adverse Impacts

With implementation of mitigation measures, significant unavoidable adverse impacts would not be anticipated.

3.9.4 Issue 31: [Impacts of Route Changes](#)

Issue Summary

Description of Problem

The Final EIS states that much of the proposed pipeline right-of-way follows existing pipeline rights-of-way, which were surveyed for cultural resources in the early 1990s. However, the Final EIS does not specify where the routes diverge or summarize the results of the earlier survey and what implications it offers for the occurrence of cultural resources in the current right-of-way.

Ecology Requirement

Include maps in the environmental review that show those portions of the route that diverge from the existing right-of-way because these areas would presumably have received no prior archaeological surveys. Since the proposed right-of-way follows the existing right-of-way, summarize previous survey results and their implications for cultural resources in the current project area.

Affected Environment

GSX-US surveyed the proposed pipeline route where landowner permission was granted, including areas that were surveyed for cultural resources in the 1990s. Maps showing the survey areas and existing right-of-way appear in the June 2000 cultural resources report (Hess et al. 2000). Previous survey results suggested that environments such as river and stream banks, lake and marine shorelines, wetland and spring margins, and higher ground including terraces, prairies, hilltops, and ridge lines would be more likely to contain archaeological materials (Hess and Thompson 2000). Archaeologists surveyed, evaluated resources, and monitored construction in the late 1980s and early 1990s for the ARCO Ferndale pipeline identifying 17 archaeological sites and 5 historic structures that are located within one mile of the proposed GSX-US pipeline route. Of these resources, 6 archaeological sites are listed as “close,” or less than 0.25 mile, to the route (Hess and Thompson 2000). One previously recorded archaeological site, 45WH52 was re-recorded during the 2000 survey although it is located outside of the GSX-US project Area of Potential Effect (APE) (Hess et al. 2000).

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

Should the pipeline route change making avoidance of cultural sites infeasible, then GSX-US should consult with OAHF and affected Indian tribes. If the resources are determined to be National Register-eligible then a treatment plan should be devised.

Terasen Gas Alternative

Refer to Issue 1.

No Action Alternative

Refer to Issue 1.

Significant Unavoidable Adverse Impacts

With implementation of mitigation measures, significant unavoidable adverse impacts would not be anticipated.

3.9.5 Issue [32: Cultural Resource Testing Methods](#)⁴

Issue Summary

Description of Problem

The Final EIS states that cultural resource testing was conducted without specifying the methodology (judgmental or random testing? auger probes or shovel tests? depositional settings? depths?)

Ecology Requirement

Summarize the testing methodology in the environmental review so the reviewer can determine the degree to which archaeological visibility and test results were attributable to real distribution patterns or methodological limitations.

Affected Environment

The cultural resources pedestrian survey included surface scrapes on terraces, prairies, upland margins, hilltops and ridge lines. Surveyors augmented the assessment with subsurface probes in river and stream bank, lake and marine shoreline, wetland and spring margin, and higher ground in floodplain environments. Subsurface investigations included excavation of judgmental 4 inch-diameter auger probes to delineate subsurface site boundaries and screening of excavated materials through 1/8-inch wire mesh (Hess and Thompson 2000; Hess et al. 2000). Two sites (37-20 - a historic period debris scatter and 45WH536 - a prehistoric site), for which landowner permission was obtained, were tested. Testing methods included excavating auger probes at the first site, shovel test probes at the second, and approximately 3-foot by 3-foot excavation units at both sites. Subsurface test units were dug to approximately 8 inches below cultural material (Zachman et al. 2000).

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.9.6 Issue [335: Archaeological Site 45WH536](#)

Issue Summary

Description of Problem

The Final EIS states that the OAHP considers a certain prehistoric site to be significant with the assertion, “that it is not well represented in the archaeological record” without any explanation as to the nature of the site or its contents.

Ecology Requirement

Clearly state the type of site and its features or artifact assemblage in the environmental review to clarify OAHP’s assertion of significance.

Affected Environment

OAHP considers archaeological site 45WH536 to be significant. The site is a shallow scatter of prehistoric stone tools, bone artifacts, and fire-cracked rock. Few resources of this type have been recorded in interior western Washington (Whitlam, pers. comm., 2000, 2003; Zachman et al. 2000).

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.9.7 Issue [34: Eligibility Status of Five Sites](#)⁶

Issue Summary

Description of Problem

The Final EIS cites the following five historic cultural resources: 37-15, 37-16, 37-17, 37-19, and 37-20 without identifying eligibility status. Potential indirect impacts on the historic telegraph line/road community of Gera are not discussed.

Ecology Requirement

Include a determination of eligibility for the aforementioned cultural resources in the environmental review and, if found eligible for inclusion on the NRHP, discuss the potential indirect impacts (e.g., visual impacts, etc.) on Gera.

Affected Environment

Site 37-15 (HRA-WH-4H), a historic period wood cutter's camp, may be eligible for listing in the National Register. However, the landowner has denied permission for additional testing of the resource to determine its significance. Site 37-16 (HRA-WH-3H), the Grandview farmstead, is ineligible for listing in the National Register as an archaeological site because no research potential exists in the debris scatter associated with the site. A search of historical documents also indicated that the site was not eligible for listing in the National Register under Criterion B because it is not associated with any person important in local or state history. Site 37-17 (HRA-WH-7H), the South Sumas Road site, is a low-density historic period debris scatter. The site does not retain integrity and is therefore not eligible for listing in the National Register. Site 37-19 (HRA-WH-9H), the Easterbrook Grade site, is another low-density historic period debris scatter that is not significant because it lacks diversity and integrity. Site 37-20 (HRA-WH-6H), the Telegraph Trail site, is a historic period debris scatter near a telegraph route and road associated with the former community of Gera. This site was tested (see Issue 4) and determined not to be eligible for listing in the National Register. The site has no standing structures and would therefore not experience indirect impacts from the GSX-US project (Hess et al. 2000; Zachman et al. 2000).

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.9.8 Issue [35: Construction Impacts](#)⁷

Issue Summary

Description of Problem

The Final EIS did not adequately assess potential impacts on cultural/historic resources of project staging areas, temporary work areas, and access roads.

Ecology Requirement

Facility sites, all project staging and temporary work areas, and access roads should be evaluated for potential impacts on cultural/historic resources. OAHP review comments and opinion should be included or summarized in the SEPA documentation.

The concurrence letter from OAHP for the underwater archeological work should be incorporated in the SEPA document. A subsequent concurrence letter for the onshore portion of the project should also be included or discussion provided in the SEPA document.

Affected Environment

GSX-US surveyed access roads and staging areas as well as a 300-foot-wide corridor centered on the proposed pipeline centerline. During the initial and one supplemental survey in 2000, approximately 4.3 miles of the pipeline right-of-way was not surveyed because of landowner

refusals. The results of additional archaeological survey since then have not been compiled. The results of these studies may identify additional resources in the project area.

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.8 SOCIOECONOMIC CONDITIONS

3.8.1 Applicable Sections in FERC Documents

Please refer to Section 3.11 of the FERC Final EIS and Resource Report 5, Socioeconomics, in Exhibit F-1 of GSX-US's original application to FERC.

3.8.2 Issue 28: References to Supporting Conclusions

Issue Summary

Description of Problem

The FERC Final EIS does not provide references to support most statements of fact or conclusions in the discussions of population, economy, employment, housing, property values, and tax revenues. Without proper citations, it is not possible to verify the information provided.

Ecology Requirement

Include proper documentation for all data and information obtained from other sources in the SEPA Supplemental EIS.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

Resource Report 5, Socioeconomics, contains the following list of references and contacts in support of the Final EIS findings and conclusions.

Data Book. 1999. San Juan County Profile. URL:
<http://www.ofm.wa.gov/databook/county/sanj.htm>.

Data Book. 1999. Whatcom County Profile. URL:
<http://www.ofm.wa.gov/databook/county/what.htm>.

Bellingham/Whatcom County Convention and Visitors Bureau. URL:
<http://www.bellingham.org>

San Juan Island Chamber of Commerce. 2000. URL: <http://www.sanjuanisland.org>.

TERA Environmental Consultants, Ltd. 2000. Environmental and socio-economic impact assessment for the Georgia Strait Crossing Project. Prepared for Georgia Strait Crossing Pipeline Limited, Vancouver, British Columbia.

U.S. Census Bureau Department of Commerce. 2000. General Population and Housing Characteristics: 1990. URL: <http://www.factfinder.census.gov>.

U.S. Census Bureau Department of Commerce. 2000. Occupancy, Tenure, and Age of Householder: 1990. URL: <http://www.factfinder.census.gov>.

Washington State Employment Security Department. 1999. San Juan County Profile. Labor Market and Economic Branch Report. URL: <http://www.wa.gov/esd/lmea>.

Washington State Employment Security Department. 1999. Whatcom County Profile. Labor Market and Economic Branch Report. URL: <http://www.wa.gov/esd/lmea>

Agencies and individuals contacted by GSX-US for the socioeconomic analysis are listed in the following table.

Table 3-2: Agencies Contacted for Socioeconomic Data

Agency	Contact	Title	Phone Number/Email	Regarding	Date
Whatcom County	Kalyn Gabriel	MLIS Webmaster	kgabriel@co.whatcom.wa.us	Social Services data	6-30-00
San Juan County Health and Community Services	John Manning	Director	johnm@co.san-juan.wa.us	Social Services data	6-30-00
Whatcom County Medical Society	Marilyn Miller	Executive Secretary	(360) 676-7630, MJMiller@hinet.org	Social services data	6-30-00
Whatcom County Labor Market Information	John Wines	Research Analyst 3	1-800-215-1617, Jwines@ESD.WA.GOV	Labor statistics	7-10-00

Terasen Gas Alternative

The construction of each of the three new compressor facilities would require approximately 6,000 person-days of work and employ approximately 30 contract personnel during peak construction. Local construction companies will benefit through subcontracts for some of the general construction work. The projects will also create secondary employment by generating the need for construction support and supply services.

For pipeline looping, a typical 12.4-mile loop provides approximately 27 person-years of employment. However, once operational, these loops will provide limited maintenance employment. It is anticipated that at least some of construction skills required for each loop should be available in the local labor market. The hiring of local workers would contribute to a modest, short-term improvement in employment levels, and generate several indirect and induced jobs in local economies.

Socioeconomic analyses for the LNG facility are not available.

No Action Alternative

Implementation of the NorskeCanada proposal could have significant local benefits resulting from the purchase of local goods and services, improvement in the economic competitiveness of the local economies, diversification of local economic activity, and protection of existing local jobs.

During the construction phase of the projects, there would be an estimated 500 person-years of onsite labor. Approximately \$20 million would be spent on sourcing local services during construction, and an additional \$20 million would be spent on engineering and consulting services in the BC lower mainland.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.7 LAND AND SHORELINE USE

3.7.1 Applicable Sections in FERC Documents

Please refer to Section 3.9 in the FERC Final EIS and Resource Report 7, Soils, and Resource Report 8, Land Use, Recreation, and Visual Resources, in Exhibit F-1 of GSX-US's original application to FERC.

3.7.2 Issue ~~1~~26: Consistency with Plans and Policies

Issue Summary

Description of Problem

The FERC Final EIS does not include a summary of existing land use plans, shoreline plans, or zoning regulations applicable to the proposal, nor does it include a discussion of whether the proposal is consistent or inconsistent with these plans and regulations.

Ecology Requirement

Include an analysis of the proposal's consistency with adopted land use and shoreline plans and regulations in the environmental review.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

No additional analysis required. Refer to discussion of consistency with land use plans and policies below.

Terasen Gas Alternative

Approximately 30 acres would be converted for use for the three compressor stations. Each station would require approximately 10 acres, with 7 acres requiring clearing. Most of the pipeline looping on 45.3 miles of existing Terasen Gas pipeline would be constructed within existing pipeline right-of-way. The LNG facility would require an operational area of 10 acres, with a minimum 300-acre protective buffer surrounding the site.

No Action Alternative

Impacts of the proposed project would not occur.

Consistency with Plans and Policies

The purpose of this section is to evaluate the consistency of the GSX-US project with adopted land use plans, policies, and regulations. A summary of the key elements of each plan, policy, or regulation is provided and followed by an analysis of consistency with the proposal. No equivalent consistency analysis was conducted for the GSX-Canada portion of the project.

State of Washington

Clean Water Act Implementation

Water quality regulations are mandated by the federal Clean Water Act (~~Water Act~~, RCW 90.48, the Water Pollution Control Act). ~~RCW 90.48 is~~ Act, is the primary water pollution law for the state of Washington. Under state statute, discharge of pollutants into waters of the state is prohibited unless authorized. WAC 173-201A mandates water quality standards for surface waters. Ecology issues a Section 401 certificate of water quality compliance for each Clean Water Act Section 404 permit. Ecology also has the authority to issue administrative orders for projects not requiring 404 permits. Ecology administers requirements under Clean Water Act Section 402 through its National Pollutant Discharge Elimination System (NPDES) individual and general permits, including a general construction stormwater permit.

Coastal Zone Management Act

The Coastal Zone Management (CZM) Act of 1972 was enacted to encourage advancement of national coastal management objectives and help states develop and implement management programs. Washington's CZM Program has been approved by the National Oceanic and Atmospheric Administration and is administered by Ecology.

When applying for federal permits, such as a U.S. Coast Guard or U.S. Army Corps of Engineers Section 401 and 404 permit, for a project in one of the 15 coastal counties, project applicants must certify that the requirements of the state's CZM Program have been met (Shoreline Management Act, RCW 90.58). For a proposal to be consistent with the CZM Program, it must meet the requirements of SEPA, the Shoreline Management Act, federal and state clean water acts, and federal and state clean air acts. Ecology reviews proposed projects for consistency with the above laws. The CZM Certification of Consistency with Washington's Coastal Zone Management Program for Federally Licensed or Permitted Activities is a checklist that provides the necessary information to assure federal consistency.

For purposes of review, Ecology normally uses the Shoreline Management Act (SMA) statute, Chapter 90.58 RCW, its implementing regulations (WAC), and the local jurisdiction's shoreline master programs (in this case, San Juan and Whatcom counties). However, in the case of the Whatcom County Shoreline Management Program Chapter 23.100.210, the Cherry Point Management Unit (CPMU) has not been accepted by the federal government as part of the State's Coastal Zone Management Act (CZMA) and, therefore, may not be used to determine CZMA consistency. However, Chapter 23.100.210 (the CPMU) was adopted by the State of Washington as part of the state master program in 1987. Therefore, for the purpose of

determining CZMA consistency, Whatcom County's Conservancy and Aquatic shoreline designations that pre-dated the CPMU and are part of the CZMA must be used. Excerpts of the applicable provisions of the Whatcom County Shoreline Master Program (Title 23 of the Whatcom County Code) are included below.

23.30.44 CONSERVANCY SHORELINE AREA

(a) The Conservancy Shoreline Area is defined as:

1. A shoreline area containing natural resources which can be used/managed on a multiple use basis without extensive alteration of topography or banks; including but not limited to forest, agricultural and mineral lands, outdoor recreation sites, fish and wildlife habitat, watersheds for public supplies, and areas of outstanding scenic quality; and/or

(b) The purpose of the Conservancy designation is to obtain long term wise use of its natural resources, including multiple use whenever practical, and to prevent forms of development which would be unsafe or incompatible with more appropriate uses. This policy should be furthered by keeping overall intensity of development or use low, and by maintaining most of the area's natural character.

(c) The following are secondary criteria for Conservancy designation:

1. The area contains renewable natural resources or processes which should be managed so that the resource base is maintained, such as on a sustained-yield basis; or

2. The area is more valuable to the region under multi-purpose, sustained yield management of its natural resources than through any form of more intensive or single purpose development; or

(d) The following policies are adopted for Conservancy Areas:

1. Renewable resources should be managed on a sustained yield basis, and vital natural processes should be protected, so that the overall resource base is maintained. Non-renewable resources should only be consumed in a manner compatible with conservation of other resources and other appropriate uses.

2. Multiple uses of the shoreline should be strongly encouraged and maintained if such uses are compatible with each other and conservation of shoreline resources. Dominant, intensive single uses over large areas should be discouraged.

23.30.46 AQUATIC SHORELINE AREA

(a) The Aquatic Shoreline Area is defined as the area waterward of the OHWM of all streams and rivers, all marine water bodies, and all lakes, together with their underlying lands and their water column; including, but not limited to: bays, straits, harbor areas, waterways, coves, estuaries, streamways, tidelands, bedlands, wetlands and shorelands.

(b) The purpose of the Aquatic designation is to:

1. Encourage and protect appropriate multiple uses, or dominant uses in limited areas, in navigable or open waters.
2. Preserve the limited water surfaces, tidelands and shorelands from encroachment; and
3. Preserve and ensure wise use of the area's natural features and resources which are substantially different in character from those of adjoining uplands and backshores.

(c) The following are secondary criteria for Aquatic designation:

1. Marine water areas seaward of the ordinary high water mark including estuarine channels and wetlands;

(d) The following policies are adopted for Aquatic Areas:

1. Development should be sharply limited to those uses which are compatible with conservation of Area resources including water, fish and wildlife, and recreation areas, as well as with other appropriate uses and the area's unique natural character. Development in conflict with these objectives should be directed to an on shore location.
2. Almost all marine, lake, and river surfaces, water column and bedlands are public property and as such their openness and extent must be protected from unnecessary obstruction or encroachment. Offshore development should be limited to those uses which are truly water-surface dependent, or which provide broad and substantial compensating benefits to the community or region.
3. Multiple use of water surfaces and structures in Aquatic Areas must be protected and encouraged whenever compatible with resource conservation and other appropriate uses. The need for a specific shoreline development to be multiple-purpose increases as its impact on the shoreline increases.
4. As with Conservancy, multiple use and sustained yield are the two overriding policies for management of Aquatic Areas. Development in substantial conflict with these policies should not be permitted due to the public property nature of this area and its natural features.

23.90.10 GENERAL POLICIES

.11 Water Dependent/Water Related Uses

Preference should first be given to appropriate use and development activities which are water dependent, water related or water enjoyment activities as defined in this Program, and secondly to those activities which do not adversely affect the shoreline environment or other uses and further the goals and objectives of this Program. Activities that are not consistent with this Program should be discouraged or prohibited.

.13 Use Conflicts

Developments should be located, designed, constructed and managed to minimize adverse effects on other appropriate shoreline uses, whether existing or planned, and to provide safe, healthy conditions. Unavoidable impacts or use conflicts should be held to publicly acceptable minimums

by utilizing a variety of mitigation measures such as buffer areas, site design, landscaping and setbacks. Intensive shoreline uses should locate near existing uses of a similar character, or in new locations which are consistent with this Program.

.15 Hazardous, Sensitive or Unsuitable Areas

Natural features or conditions associated with shorelines are often environmentally sensitive or potentially hazardous to development. Such areas and features include natural wetlands, accretion shoreforms, floodways, alluvial fans, steep slopes, unstable soils, ground and surface water, fish and wildlife habitat and shore processes. Many such areas are often unique or scarce, highly productive biologically, visually attractive, valuable for public access, open space or recreation, and in many instances hazardous or otherwise unsuitable for intensive use or development. Such areas should be maintained in a natural condition. In limited instances where alternatives are infeasible, some minimal development activity may be allowed, provided optimum mitigation is achieved. Such development, if properly conducted, should not impair natural features, recreation or aesthetic values or result in hazardous conditions, and should adequately protect resources over the long term.

.16 Site Preparation

Land clearing, grading, filling, and alteration of natural drainage or other features should be limited to the minimum amount necessary to accommodate approved development. Surfaces cleared of vegetation should be immediately revegetated with native or compatible plants. Landscaping projects requiring substantial earth modification and grading should be carefully and professionally designed to prevent maintenance problems or damage to shore features and processes.

.18 Water Quality

Location, construction, operation, and maintenance of all shoreline use and development activities should maintain or enhance the quality of surface and ground water over the long term, and restore water quality if degraded. As a minimum, state water quality and all other applicable standards should be adhered to.

.20 Fish and wildlife

All shoreline use and development activities should be located and operated so as to provide long term protection of fish and wildlife resources, and their various habitats. Maintenance and enhancement of fisheries should be given priority consideration in reviewing shoreline use proposals which might adversely impact fisheries habitat, migratory routes and harvest of significant fish or shellfish species. Alternative locations or designs should be seriously considered for such proposals if such potential adverse impacts are significant. Shorelines having banks, beaches and beds critical to preservation or enhancement of the fisheries resource base should be maintained or restored to a productive natural condition whenever possible.

.21 Views and Aesthetics

Development should not detract from shoreline scenic and aesthetic qualities which are derived from natural or cultural features, such as shoreforms, natural vegetative cover, scenic vistas, diverse landscapes, historic structures, and rural and wilderness-like shores. These and other scarce or valuable features should be conserved or enhanced by development and utilized for

open space, fish and wildlife habitat, public access or recreation purposes. Over water construction should be minimized, site restoration should be required, visual compatibility in design of development with its surroundings should be encouraged and scenic views should not be obstructed. Also, protection of the view of the shoreline from the water surface should be considered.

.22 Public Access

- (a) Physical or visual access to shorelines should be required as a condition of significant development activities, when the proposal would either generate a demand for specific forms of such access, and/or would impair existing, legal access facilities and/or rights.
- (f) Publicly-owned shorelines should be limited to water-dependent or public recreational uses, otherwise such shorelines should remain protected open space.

.24 Utilities

Intensive developments should only be located in areas where adequate utilities are already developed, or planned officially, or may be provided without significant damage to shore features. Appropriate materials and techniques should be utilized to protect natural features and other users. Exterior finish of structures and materials should be of a non-reflective character compatible with the surrounding area.

23.90.40 GENERAL REGULATIONS

.41 Use Conflicts

Required setback and buffer areas shall be planted with native or locally compatible species or maintained in a natural condition except where foot or bicycle traffic may require surfacing. Such areas may not be used for vehicle parking nor open storage. Width and physical nature of such buffers shall be determined by the County commensurate with the proposed intensity of use and character of the local area and adjacent uses.

.43 Hazardous, Sensitive or Unsuitable Areas

Development shall be located, designed, constructed and maintained to prevent hazardous conditions and to substantially conserve wetlands, fish and wildlife habitat, shore processes and other sensitive natural features which are valuable in the region.

.44 Site Preparation

Land clearing, grading, filling, removal of vegetation and alteration of natural features shall be kept to the minimum that is reasonably necessary to accommodate approved development. Disturbed areas shall be revegetated as soon as possible.

.46 Water Quality

State water quality and all other applicable standards shall be adhered to. Water quality of ground and surface waters shall not be significantly degraded.

.47 Hazardous/Toxic Materials

- (a) Release of hazardous, toxic or acid-forming materials which are likely to degrade surface or ground water quality or damage other resources is prohibited. No airborne release of chemicals shall be permitted over shorelines.
- (b) Facilities and procedures utilizing advanced available systems and technology for handling, disposal or prompt spill clean-up of oil, fuel and/or hazardous materials shall be required wherever such materials are to be handled in any significant quantity.

.48 Fish and Wildlife

Design, location, construction and operation of all shoreline use and development activities shall not unnecessarily impact fish and wildlife resources and their respective habitats over the short or long term. Development in critical wildlife habitat areas identified by the Department of Wildlife or Fisheries shall not be permitted unless adequate mitigation of impacts can be provided. Development is also subject to the provisions of the Critical Areas Ordinance.

.49 Views and Aesthetics

Development shall be designed, located, constructed and maintained to avoid obstruction of views or other adverse impacts on shore scenery and aesthetic quality. Where such impacts are unavoidable, development may be approved where significant public access areas or facilities are provided or other means of enhancing the public's enjoyment of visual and aesthetic resources in the area are provided.

.50 Public Access

- (a) In the review of all shoreline substantial development or conditional use permits, consideration of public access shall be required.
- (b) Public access shall generally not be required for the following except as determined on a case-by-case basis in conjunction with the provisions of Chapter 23.90.22 and 23.90.50:

- 1. Dredging
- 2. Forest Practices
- 3. Landfill and Excavation
- 4. Mining
- 5. Private Docks
- 6. Stream Control Works

.56 Conformance to Other Plans, Policies and Regulations

Use and development activities shall conform to all zoning, subdivision, health and other applicable requirements of Whatcom County and other agencies with jurisdiction in shoreline areas. In the case of conflicting requirements, the more restrictive shall apply.

23.90.60 SETBACKS, HEIGHT, AND OPEN SPACE STANDARDS FOR SHORELINE DEVELOPMENT

.61 Shore Setbacks

Table 23.90.60 establishes the minimum required shore setbacks for development, including all structures and substantial alteration of natural topography. Shore setbacks shall be measured from OHWM; PROVIDED that, on natural wetlands, such setback shall be measured from the edge of the wetland, and on erosional or otherwise geologically unstable banks more than ten feet high and sloping at more than 30 (thirty) percent, such setbacks shall be measured from the bank rim or crest of such slope; PROVIDED FURTHER that, no shore setback shall exceed the geographic limit of the Act’s jurisdiction.

23.90.60 Table of Setbacks, Height and Open Space

The following table provides the minimum requirements for shore and sideyard setbacks, height limits, and open space. All figures for setbacks and height denote feet. Letters in parentheses are footnotes, which are defined below.

Minimum Requirements for Setbacks, Height Limits, and Open Space

	<u>Urban</u>	<u>Urban Resort</u>	<u>Rural</u>	<u>Conser-vancy</u>	<u>Natural</u>	<u>Aquatic</u>
<u>Roads/Railways</u>						
<u>Shore Setback:</u>						
<u>Local or Minor Access</u>	<u>25</u>	<u>25</u>	<u>50</u>	<u>100</u>	<u>N/A</u>	<u>N/A</u>
<u>Arterial or Collector</u>	<u>100</u>	<u>100</u>	<u>150</u>	<u>200</u>	<u>N/A</u>	<u>N/A</u>
<u>Signs</u>						
<u>** Shore Setback</u>						
<u>Side Setback</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>N/A</u>	<u>N/A</u>
<u>Height Limit (c/d)</u>	<u>10/15</u>	<u>10/15</u>	<u>6/10</u>	<u>6/10</u>	<u>N/A</u>	<u>10</u>
<u>Utilities</u>						
<u>Shore Setback (a/b)</u>	<u>50/100</u>	<u>50/100</u>	<u>75/125</u>	<u>100/150</u>	<u>N/A</u>	<u>N/A</u>
<u>Side Setback</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>N/A</u>	<u>N/A</u>
<u>*Height Limit (c/d)</u>	<u>20/35</u>	<u>20/35</u>	<u>20/20</u>	<u>20/20</u>	<u>N/A</u>	<u>N/A</u>
<u>Open Space %</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>N/A</u>	<u>N/A</u>
<u>All Other Development</u>						
<u>Shore Setback (a/b)</u>	<u>50/100</u>	<u>50/100</u>	<u>75/125</u>	<u>100/150</u>	<u>N/A</u>	<u>N/A</u>
<u>Side Setback</u>	<u>10</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>N/A</u>	<u>N/A</u>
<u>*Height Limit (c/d)</u>	<u>15/25</u>	<u>15/25</u>	<u>25/30</u>	<u>25/30</u>	<u>N/A</u>	<u>N/A</u>
<u>Open Space %</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>N/A</u>	<u>N/A</u>

a = Applies to shore dependent structures and development

b = Applies to development not requiring a shoreline location

.65 Miscellaneous Provisions

(a) Setbacks, height or open space requirements established in Title 20 or as a condition of permit approval shall apply when more restrictive.

(b) The following development activities are not subject to setbacks:

2. Underground utilities, other than septic systems;

23.100.180 UTILITIES

Utility development in shoreline areas shall be subject to the policies and regulations of this section and Section 23.90.

23.100.180.10 Policies

.11 Planning and Coordination

New utility development should be consistent and coordinated with all local government and state planning, including comprehensive plans and single purpose plans. Site planning and rights-of-way for utility development should provide for compatible multiple uses such as shore access, trails, and recreation or other appropriate use whenever possible; utility right-of-way acquisition should also be coordinated with transportation and recreation planning.

.16 Fuel Pipelines

Oil and gas pipelines have critical location requirements and have potential for adverse and dangerous effects from spills or leaks. Such facilities should not be located along shorelines, particularly in hazardous or sensitive areas, and crossings of water bodies should be held to the minimal number possible at locations consistent with this Program.

.20 Hazardous Materials

If utility operations involve materials whose compositions or interactions with other materials are likely to damage public health, environmental quality, or property values, all handling and storage of such materials should be organized and equipped so as to prevent such likely damages.

.21 Buffer

Recognizing the likelihood of use conflicts from and the intensive industrial character of some utility development, adequate buffers or setbacks should be required commensurate with local shoreline use and physical character.

23.100.180.30 Regulations

.31 Shoreline Area Regulations

- (c) Rural: Utility development is permitted subject to policies and regulations.
- (d) Conservancy: Utility development is permitted subject to policies and regulations; PROVIDED that, sewage outfalls and treatment plants, overhead communication or power- lines and fuel pipelines are a conditional use. Communication towers are prohibited.
- (f) Aquatic: Submarine water and sewer lines, fuel pipelines, and sewer outfalls are permitted as conditional uses; submarine electrical or communications cables, overhead public utility lines if adequately flood proofed, and water intakes are permitted subject to policies and regulations; for purposes of crossing water bodies, overhead transmission or distribution lines and on site electrical communication wiring may be permitted within

100 feet of the OHWM and natural wetlands and over bodies of water as a conditional use; all other utility development is prohibited.

.32 General Regulations

(a) Hazardous Areas:

Utility development other than subsurface pipelines or cables is prohibited in flood plains, coastal flood hazard areas, or geologically unstable or unsafe areas; PROVID-ED that, conditional use permits may be granted for limited development in flood plains or coastal flood hazard areas if adequately flood-proofed, flood levels are not signifi-cantly raised, and alternatives are not feasible; PROVIDED FURTHER, that overhead public utility lines and support structures, if adequately flood proofed, may be located in the flood plain without a conditional use permit, subject to all other applic-able regulations.

(c) Fossil Fuels:

Oil and gas pipelines, except local service lines, may be authorized as a conditional use. Developers of pipelines and related appurtenances for gas and oil shall be required to demonstrate adequate provisions for preventing spills or leaks, as well as established procedures for mitigat-ing damages from spills or other malfunctions.

.33 Tabular Regulations: Setbacks, Height Limits and Site Coverage for Utility Development

(a) Minimum required setbacks from shorelines and side property lines and maximum height limits are contained in Section 23.90.60-Setback, Height and Open Space Standards for Shoreline Develop-ment.

23.100.40 DREDGING

Dredging in shoreline areas shall be subject to the policies and regulations of this section and Section 23.90.

23.100.40.10 Policies

.11 Necessity and Purpose

Dredging should be permitted for water-dependent uses of economic importance to the region only when necessary and alternatives are infeasible or less consistent with this Program.

.12 Water Quality and Quantity

Dredging should aim toward maintaining state water quality and all other applicable standards of affected waters and prevent-ing additional flooding or erosion.

.13 Geo-Hydraulics

Potential adverse impacts of dredging should be carefully assessed. Design and operating conditions should be established which will prevent interruption of the shore process corridor or significant harm from erosion or flooding to valuable physical features and properties .

.14 Fish and Wildlife

In reviewing dredging proposals, the County should ensure that maximum feasible conservation of shore-related life forms and their respective habitats is provided. Enhancement of such habitats through dredging or use of dredge spoil should be encouraged whenever consistent with State Wildlife and Fisheries Department policies.

.16 Spoil Disposal

(a) Because of the high probability of water quality and biologic resource problems from disposal, dredge spoils should not be deposited in shallow offshore areas or natural wetlands. Suitable land or open water sites should be selected in cooperation with other public agencies including the County Health Board, Port of Bellingham, adjacent local governments, Lummi Nation, Nooksack Tribe, State Departments of Natural Resources, Fisheries, Ecology, and Wildlife and the Federal Environmental Protection Agency and the Army Corps of Engineers.

(c) Spoil disposal in open navigable waters may be less consistent with this Program than land disposal, and should be permitted only under one or more of the following conditions:

1. Land disposal is infeasible, less consistent with this Program, or prohibited by law.
2. Offshore biologic habitat will be protected, restored, or enhanced.
3. Adverse effects on water quality or biologic resources from contaminated bottom materials will be mitigated.
4. Shifting and dispersal of spoil will be minimal.
5. Water quality will not be adversely affected.

(d) The County should require dredging project sponsors to provide sufficient detailed information on disposal plans so that a rational decision can be made as to the site and means of disposal which will be consistent in the long term with this Program and other public policies and regulations.

(e) Professional chemical, biological, and physical analysis of spoil material should be considered in review of extensive projects or those in sensitive areas.

.17 Sensitive Areas

Dredging should not be permitted where valuable natural wetlands, estuaries, eelgrass beds, accretion shoreforms, or other scarce and valuable natural areas would suffer significant harm. In estuarine branch channels, dredging below low tide level does not increase channel capacity but acts as a sediment trap requiring periodic, long term maintenance dredging and should not be permitted.

.18 General Dredging Considerations

- (a) Dredging should utilize techniques that cause minimum dispersal and broadcast of bottom material; sidecast disposal in water bodies should not be permitted; hydraulic dredging is generally preferred over agitation dredging.
- (b) Hydraulic modeling studies should be considered in review of large scale, extensive dredging projects, particularly in estuaries in order to identify existing geo-hydraulic patterns and probable effects of dredging.
- (c) It must be considered in design review that in the long term, the relatively fixed horizon and profile of the wave-cut terrace underlying loose beach material on ending marine cliff shores cannot feasibly be re-established once cut away.

.19 Timing

All operations should be carefully scheduled and conducted to prevent or minimize adverse impacts upon shoreline features.

.20 Beach Feeding

The use or recycling of dredge spoil for beach feeding, habitat enhancement, berm building, or soil building on agricultural lands is preferable to landfill or open water disposal and should be encouraged if the soil is clearly suitable for such uses.

23.100.40.30 Regulations

.31 Shoreline Area Regulations

- (c) Rural: Dredging is permitted as a conditional use subject to policies and regulations.
- (d) Conservancy: Dredging is permitted as a conditional use subject to policies and regulations.
- (f) Aquatic: Dredging is permitted as a conditional use, except that dredging pursuant to Chapter 23.50.31(b),(d) is permitted subject to policies and regulations;

.32 General Regulations

- (a) Necessity and Purpose

Dredging shall be permitted for the following purposes only:

1. Development of approved wet moorages and harbors, ports and shore dependent industries;
2. Restoration or enhancement of hydraulic capacity of streamways, and construction or maintenance of irrigation reservoirs, and drains, canals or ditches for agricultural purposes; Provided, sidecasting of dredged materials to create or enlarge berms or dikes is prohibited unless specifically planned and authorized by a shoreline permit in accordance with Chapter 23.100.170 Stream Control Works;

3. Mitigation of conditions adverse to public safety;
4. Enhancement of water quality or biologic habitats;
5. Enhancement of shore dependent or related recreational opportunities for substantial numbers of people;
6. Minor trenching to allow the installation of necessary underground pipes or cables.

(b) Public Safety and Environmental Protection

1. The County may impose reasonable limitations on dredge or disposal operating periods and hours, and may require provision of buffer strips at land disposal or transfer sites in order to protect the public safety and other shore users' lawful interests from unnecessary adverse impact.
2. All phases of dredging shall be conducted so that state quality standards for affected waters are not lowered on a long term basis. The County may require reasonable precautions, particularly in disposal operations such as dikes (temporary), settling basins, or buffer strips to achieve this objective. Release onto shorelines of hazardous materials is prohibited.
3. Stream, lake or marine banks shall not be lowered if material damage to shoreline resources or other properties will likely result therefrom.

(c) Spoil Disposal

Disposal is prohibited on marine shorelines landward from the line of extreme low tide, on lake shorelines or beds, and in stream-ways; PROVIDED that, dredge spoil may be utilized in approved beach feeding or other shoreline resource enhancement development, or in landfills if permitted under applicable regulations.

(d) Landfill

Dredging bottom material from natural water bodies or their adjacent natural wetlands for the purpose of obtaining landfill material is prohibited, except that limited bar scalping of gravel in stream-ways is permitted under Mining policies and regulations (Section 23.100.90).

(e) Sensitive Areas

Dredging is prohibited in estuaries, wetlands adjacent to natural water bodies, alluvial fan hazard areas, in marine accretion shoreforms, or at the base of feeder bluffs except in the following instances, with the approval of the Washington Department of Fisheries and/or Wildlife:

1. Dredging is permitted as a conditional use in wetlands for the purpose of fish and/or wildlife enhancement.
2. Dredging is permitted as a conditional use in alluvial fan hazard areas, such as creek deltas, for the purposes of enhancing fish passage to existing fish hatcheries.

3. Dredging is permitted as a conditional use in alluvial fan hazard areas, such as creek deltas, to allow protection of existing structures, roads and facilities where no feasible alternative exists (Whatcom County 2003).

Shoreline Management Act

The goal of Washington's SMA (RCW 90.58) is "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." The act establishes a broad policy of shoreline protection, which includes water quality, flora and fauna, and habitat protection. The SMA uses a combination of policies, comprehensive planning, and ~~zoning~~ shoreline environment designations to create a special zoning code overlay for shorelines. Under the SMA, each city and county ~~can adopt a shoreline master program~~ must adopt a Shoreline Master Program (SMP) that is based on state guidelines but tailored to the specific geographic, economic, and environmental needs of the community. Master programs provide policies and regulations that address shoreline use and protection as well as a permit system for administering the program.

On May 2, 2001, GSX-US submitted an incomplete and premature request for a Certification of Consistency with the Washington CZM Program to Ecology. As recently revised, GSX-US currently proposes to implement several measures to ensure consistency with the CZM Program as described below.

- The landfall near Cherry Point would be crossed using the HDD construction method. The drill entry point would be located about ~~1,000~~900 feet inward of the top of the coastal bluff and would pass through the ground about 200 feet below the surface, ensuring pipeline protection from bluff erosion. At the beach and nearshore, the pipeline would be approximately 30-50 feet below the surface. The exit point would be about 2,200 feet offshore at approximately -134 feet MLLW, avoiding direct disturbance to the coastal bluff and nearshore environment.
- From the HDD exit point to a water depth of about 240 feet at approximately 5 miles, the pipe would be buried in the seabed at a depth equivalent to the pipe's diameter to protect against significant ecological impacts (e.g., crab movement or substrate alteration).
- Stream reaches designated as ~~shorelines~~ "shorelines of the state" under the SMA would be crossed using the HDD construction method.
- Geotechnical investigations have indicated a high probability of success for all HDD crossings.
- ~~SMP policies and regulations of Whatcom and San Juan counties would be followed.~~
- Streams and wetlands would be crossed using FERC procedures (with specified variances discussed in Section 3.4.2.3 of the FERC Final EIS) and enforceable policies of the U.S. Corps of Engineers and Ecology.
- GSX-US would implement the FERC plan (with specified variances discussed in Section 3.2.1 of the FERC Final EIS) to control erosion and sedimentation from construction activities. Additionally, GSX-US would comply with enforceable policies of state and county programs addressing groundwater controls.

- Onshore and offshore Spill Prevention Control and Countermeasures (SPCC) Plans have been prepared to minimize spill potential and consequences of a spill, which are currently under review by Ecology.
- Operation of the proposed Cherry Point compressor station would be in compliance with state air quality requirements.
- Pipeline facilities would be designed and located to minimize impact on shoreline functions, preserve the natural landscape, and minimize conflicts with present and planned land and shoreline uses.
- The proposed pipeline facilities would be located adjacent to existing rights-of-way and utility corridors for about 73% of the onshore length. Just over a quarter of the upland route would require a new utility corridor. All of the marine route requires a new utility corridor.

Cherry Point Aquatic Reserve

The WDNR is responsible for the management of state-owned aquatic land, including the aquatic lands proposed for the GSX-US pipeline right-of-way. On September 25, 2003, the Commissioner of Public Lands recommended the creation of four aquatic reserves in Puget Sound pursuant to WAC 332-30-151. One of the four reserves is the Cherry Point Aquatic Reserve.

The purpose of the Cherry Point Aquatic Reserve is to establish an environmental reserve for conservation to protect the site's essential habitat for chinook salmon and the Cherry Point herring stocks, and to prevent further habitat degradation. The Cherry Point site includes the tidelands and bedlands along the western shore of Whatcom County. The site borders the Strait of Georgia and extends from the southern boundary of Birch Bay State Park around Point Whitehorn to the northern boundary of the Lummi Indian Reservation.

WDNR is currently preparing a management plan and SEPA SEIS for the proposed Cherry Point Aquatic Reserve. Under the management plan as currently proposed, three management areas would be established:

- (b) The Aquatic Designation would apply to the area around Point Whitehorn near Birch Bay State Park. Within this area, development would be limited to those uses that are compatible with conservation of area resources, are water dependent, and benefit the community.
- (c) The Accretion Shoreform would apply to a small area near the proposed Pacific International Terminal. Within this area, development would be prohibited other than recreational development for public access that is consistent with the aquatic shoreline designation.
- (d) The largest designation within the proposed reserve would be the Cherry Point Management Unit. This area would apply to the shorelines zoned for Heavy Impact Industrial uses under the Whatcom County zoning code. The preferred use in this designation would be floating public and private marine cargo transfer terminals. Dredging and filling not associated with construction activities would be prohibited. The GSX-US pipeline would cross under the shoreline within this management unit.

[A scoping meeting for the Draft SEIS on the management plan was held on October 23, 2003. WDNR's remaining schedule for meetings on Cherry Point include a public meeting on January 15, 2004 to review the Draft SEIS. A full public hearing on the management plan, Draft SEIS, reserve boundaries, and Public Benefit Analysis will be held on January 26, 2004.](#)

[The management plan, along with the SEPA SEIS, is scheduled for completion in April 2004. At that time WDNR will determine if the proposed GSX-US pipeline can or should be sited within the Cherry Point Aquatic Reserve and, if appropriate, the conditions for allowing its use.](#)

Whatcom County

The entire [U.S.](#) onshore portion of the proposed project and the majority of the offshore portion are located in Whatcom County. Whatcom County has several plans and/or ordinances in place to guide and direct growth within the county including a Comprehensive Plan, Critical Areas Ordinance, and SMP. The county also developed natural gas and hazardous liquid pipeline siting criteria in October 2001 that can be used to identify utility corridors best suited to these types of pipeline projects.

Comprehensive Plan

The Washington State Legislature adopted growth management legislation in 1990 and 1991 and in most years since then. The 1990 Growth Management Act (GMA), RCW 36.70A.070, sets goals to guide planning in the larger, fastest growing counties and cities within those counties. The Whatcom County Comprehensive Plan was reviewed for consistency with the requirements of the GMA and the 13 stated goals of the GMA's mandatory plan elements.

The Whatcom County Comprehensive Plan is intended to guide growth in unincorporated areas of the county for the next 20 years in coordination with the plans of its incorporated cities. The fundamental purpose of the Comprehensive Plan is "to establish a framework of goals, policies, and action items for the more detailed growth planning and implementation actions which will occur in the near future in designated unincorporated urban growth areas in the county's rural areas" (Whatcom County 1997).

The Comprehensive Plan identifies Urban Growth Areas (UGAs) and contains a future land use map. The majority of the county's growth is expected to be within the UGAs (Whatcom County 1997). Of the UGAs identified in the plan, the GSX-US pipeline route crosses only the Cherry Point Major Port/Industrial UGA. The land within this UGA has been planned and designated by Whatcom County for industrial development and is currently the site of three major industrial facilities including two oil refineries and an aluminum smelter. According to the Whatcom County Comprehensive Plan, the goal of the Cherry Point UGA is to maintain the area as an unincorporated UGA based on its unique location and characteristics and its significant contribution to the overall industrial land supply and Whatcom County's tax base. GSX-US's proposed route would be within the Cherry Point UGA between MPs 29.3 and 33.1. The proposed Cherry Point compressor station would also be located within the Cherry Point UGA. The placement of these facilities within the Cherry Point Major Port/Industrial UGA is consistent with the intended use of this UGA.

Shoreline Management Program

The Whatcom County SMP was originally adopted in May 1976 with subsequent Ecology approval in August 1976 [to establish and address the shorelines of the state within Whatcom County](#). Several amendments have been adopted since 1976. The Whatcom County SMP was developed to fulfill the requirements of the [state SMA, Chapter 90.58 RCW](#). The overall goal of the SMP is to achieve rational, balanced, and responsible use of Whatcom County's shorelines (Whatcom County ~~1998~~;2003).

[Shorelines of the State are defined as “the total of all shorelines and Shorelines of State-Wide Significance.”](#) Shorelines are defined as “all of the water areas of the State, including reservoirs and their associated wetlands, together with lands underlying them; except: a) shorelines of statewide significance; b) shorelines on segments of streams upstream of a point where the mean annual flow is 20 cubic feet per second or less and the wetlands associated with such upstream segments; and c) shorelines on lakes less than 20 acres in size and wetlands associated with such small lakes” (Whatcom County ~~1998~~;2003). [Whatcom County's shoreline jurisdiction, therefore, includes the shorelines of statewide significance and the shorelines defined above \(the larger streams and lakes, their shores, and associated wetlands\).](#)

The onshore portion of the GSX-US project would cross four streams with reaches designated as [SMA](#) shorelines (Saar Creek, Sumas River, Fishtrap Creek, and Bertrand Creek). The SMP defines these shorelines as “rural.” A rural shoreline means “an area developed at a low overall density or used at a low to moderate intensity; including, but not limited to: residences, agriculture, and outdoor recreation developments” (Whatcom County ~~1998~~;2003). Pipeline facilities crossing these four streams including shorelands extending 200 feet either side of the ordinary high water mark (OHWM) would require approval under the SMP. GSX-US proposes to use the HDD or conventional bore construction method to mitigate potential impact on these designated shorelines. [The aboveground portion of the pipeline and related facilities are required to meet the setbacks described for the Rural Environment \(i.e., 125 feet from the ordinary high water mark\).](#)

The entire marine portion of the proposed route in Whatcom County is designated as a shoreline of statewide significance. Shorelines of statewide significance include all marine waters, water columns, and bedlands seaward of extreme low tide (Whatcom County ~~1998~~;2003). Policies for shorelines of statewide significance [that are particularly relevant in this instance, in the following descending order of preference](#) include:

- The statewide interest should be recognized and protected over the local interest.
 - The natural character should be preserved.
- [“\(b\)Where intensive development already exists, policies and regulations should be carried out which will allow continued or increased use consistent with this Program. Reduction of adverse impacts on shorelines should be encouraged through re-development to standards of this Program. More intensive development for appropriate uses in such areas should be considered a preferable alternative to expansion into low density use areas.”](#)

- Uses should result in long-term benefits to the people of the state.
 - “(a) Activities which use shore resources on a sustained yield or non-consuming basis and which are compatible with other appropriate uses should be given priority over uses not meeting these criteria.
 - (b) The range of options for shoreline use should be preserved to the maximum possible extent for succeeding generations. Development which consumes valuable, scarce or irreplaceable natural resources should not be permitted if alternative sites are available.
 - (a) Potential short term economic gains or convenience should be measured against potential long term and/or costly impairment of natural features.”
- Resources and ecological systems should be protected.
 - “(b) Those limited shorelines containing unique, scarce or sensitive resources should be left in their natural state.”

As stated in the Adoption of Policy, Chapter 23.40.10, “conversely, uses which are not generally consistent with these policies should not be permitted on such shorelines.”

The first 0.6-mile portion of the offshore route is within a special shoreline environment designation, the Cherry Point Management Unit. The purpose of the Cherry Point Management Unit is to provide a regulatory environment that: (1) recognizes and balances the special port, industrial, and natural resource needs associated with the development of this marine resource along a shoreline of statewide significance, (2) identifies preferred development components of port and shore-dependent industrial activities consistent with the policies of the SMA, and (3) clearly sets forth the standards for such development (Whatcom County ~~1998~~, 2003). Three major industrial/port facilities are currently located in the Cherry Point Management Unit and a fourth facility is proposed. These facilities include the BP Cherry Point Refinery/Pier (including a pier extension constructed in 2000 and 2001), Alcoa Intalco Aluminum Works/Pier, TOSCO Ferndale Refinery/Pier, and the proposed Gateway Pacific Terminal. This area overlaps with the Cherry Point State Aquatic Reserve. GSX-US proposes to use the HDD construction method to mitigate potential impact on this area.

The SMP designates the remaining portion of the offshore route in Whatcom County as ~~“aquatic.”~~ “Aquatic Shoreline Area.” Aquatic shorelines are, “the area waterward of the OHWM of all streams, all rivers of statewide significance, all marine water bodies, and all lakes, together with their underlying lands and their water column; including but not limited to bays, straits, harbor areas, waterways, coves, estuaries, streamways, tidelands, bedlands, wetlands, and shorelands” (Whatcom County ~~1998~~, 2003). The pipeline in ~~these~~ the marine areas would be buried in the seabed at a depth equivalent to the pipe’s diameter from the HDD exit hole at about -134 feet of depth into -240 feet MLLW for approximately 5 miles and then laid directly on the bottom to mitigate significant ecological impacts (e.g., crab movement or substrate alteration). The Aquatic Shoreline Area policies and regulations cited above in the section entitled “Coastal Zone Management Act” also apply.

In its request for Certification of Consistency with the Washington State CZM Program and its application for Shoreline Permit to Whatcom County (June 2001, revised ~~Nov.~~ November 2001

and January 2002), GSX-US stated that it would comply with the policies and regulations set forth in the Whatcom County SMP.

Critical Areas Ordinance

Whatcom County has identified lands and waters within the county as critical areas to comply with the GMA (Whatcom County 1997). As defined by RCW 36.70A.030(5) and Whatcom County Code 16.16.800(17), critical areas include geologically hazardous areas, alluvial fan hazard areas, frequently flooded areas, critical aquifer recharge areas, wetlands, and fish and wildlife conservation areas. These areas are defined by the Whatcom County Critical Areas Ordinance and described below.

Geologically Hazardous Areas: Geologically hazardous areas include landslide hazard, seismic hazard, and mine areas. The coastal bluff at the Cherry Point landfall exceeds 35% slope, thereby meeting the definition of a landslide hazard area. GSX-US proposes to install the pipeline in this area using the HDD construction method, which would avoid the coastal bluff. The HDD entry point would be about 900 feet east of the top edge of the coastal bluff.

Alluvial Fan Hazard Areas: Alluvial fan hazard areas include those areas on alluvial fans where flooding and/or debris torrents have the potential to damage or harm the health or welfare of the community. They include the area generally corresponding to the path of recent and potential future stream flooding and/or debris torrents as determined by local topography, hydrology, and depositional history on the fan. No active alluvial fans have been identified on the GSX-US route or aboveground facility sites.

Frequently Flooded Areas: Areas included in this category are subject to a 1% recurrence interval of flooding or a 100-year base flood as mapped by the Federal Emergency Management Agency's Flood Insurance Rate Maps as amended for Whatcom County. Such areas are located along major rivers, streams, and coastal areas where the depth, velocity, intensity, and frequency of flooding during major events are of such a magnitude that risk to human life and property improvements may occur. Subsurface pipelines are allowed uses in floodplains that include the [Nooksack River](#), Sumas River, Saar [Creek](#), [Fishtrap Creek](#), and Bertrand Creek.

Critical Aquifer Recharge Areas: This includes areas of high susceptibility to aquifer contamination as follows:

- The project is located on either Natural Resource Conservation Service hydrologic soil group A or B.
- The project is located on either the Sumas outwash geological unit or the Nooksack River floodplain alluvium geological unit.
- More than 50% of the documented well logs within 0.5 mile of the project indicate a static water level of less than 50 feet below the ground surface as indicated by the most recent well log.
- The project is located on a subsurface above the first occurrence of water that consists of highly permeable materials that are unobstructed by poorly permeable strata.

The majority of the proposed GSX-US route is located within critical aquifer recharge areas.

Wetlands: Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and, that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Non-regulated wetlands as defined by the Whatcom County Critical Areas Ordinance include:

- Areas in which wetlands were created by activity, intentional or unintentional, other than mitigation after July 1, 1990.
- Isolated wetlands less than 1/3 acre in size ([all associated wetlands in shoreline jurisdiction are regulated regardless of size](#)).
- Any wetland hydrologically isolated with vegetation dominated by invasive species or pasture grasses, the dominant functions of which are restricted to stormwater storage/flood attenuation, and the functions are no greater than all alternative non-wetlands sites on the parcel of property in question.

All other wetlands are considered regulated wetlands. Wetlands associated with the GSX project are presented in the [FERC](#) Final EIS.

Fish and Wildlife Conservation Areas: Fish and Wildlife Habitat Conservation Areas include:

- Areas where listed species have a primary association.
- Habitats and species of local importance.
- Shellfish habitat conservation areas.
- Kelp and eelgrass beds, Pacific herring spawning areas.
- Ponds and wetlands.
- Lakes and marine waterbodies.
- Rivers and streams.
- Natural area preserves.

Two riparian areas, the Nooksack River corridor and the Terrell Creek corridor, were specifically identified as critical areas. [The Cherry Point marine nearshore is a critical area due to the presence of eelgrass, kelp, and spawning areas for herring and surf smelt.](#)

Utility Corridor Planning

In October 2001, Whatcom County completed the siting criteria for natural gas and hazardous liquid pipelines indicating a preference for locating these facilities in existing utility corridors. According to Whatcom County, the purpose or function of utility corridors is to provide some level of predictability to both the general public and to the pipeline industry about the current and future routing of pipelines within the county.

Several locational factors are being considered during the development of siting criteria and the location of corridors. Some of these factors include:

- Distance to schools, high occupancy public facilities, high density residential development, medium density residential development, low density residential development, rural designated land, and areas of more intense rural development.
- Location within designated agricultural, forested, or mineral resource lands (as defined by the Comprehensive Plan).
- Average distance to existing residential structures.
- Location within an existing pipeline right-of-way, preferred county transmission corridor, or within a shared corridor.
- Location of sensitive areas defined in the Critical Areas Ordinance (i.e., wetlands, aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas).
- Acres of designated shoreline to be affected.
- Location of cultural/archeological resources.

The onshore pipeline route would be in or adjacent to various existing rights-of-way/corridors for about 73% of the onshore route. The Whatcom County Utilities Planning and Advisory Committee used the GSX onshore pipeline route as a test case for the siting criteria. That review resulted in a favorable conclusion by the Utilities Planning and Advisory Committee [for the upland pipeline route](#).

Whatcom County has recognized that federal regulations and case law on permitting interstate pipeline facilities may preempt state and local governments. This fact was further acknowledged within an internal communication from the County Prosecutor's office to the County Planner's office. GSX proposes to meet with the County Planner's office to discuss and potentially fund opportunities to ensure that local land use requirements are not compromised or violated.

San Juan County

About 3.7 miles of the offshore portion of the GSX-US project is located in San Juan County. San Juan ~~County has a~~[County's](#) Comprehensive Plan and Unified Development Code ~~in place to guide and direct growth and development within the county. San Juan County's Shoreline Master Program is incorporated in both the~~[contain policies and regulations that are applicable to the pipeline project even though the GSX-US project would not cross any land surface within the county. Comprehensive Plan and the Unified Development Code.](#)~~The applicable policies and regulations are discussed in the following sections.~~

Comprehensive Plan

As with Whatcom County, San Juan County's Comprehensive Plan was developed in response to the Washington GMA. San Juan County's Comprehensive Plan is "a guide for the physical, economic, and community development of the county for the next twenty years" (San Juan County ~~1998~~[2002](#)). The Comprehensive Plan uses a land classification system to identify different types of land use districts based on the goals and policies of the Comprehensive Plan. Although the GSX-US project would not cross any land surface within San Juan County, [the project would be affected by policies in](#) one of the elements included in the Comprehensive ~~Plan is San Juan County's SMP. This element of the~~[Plan—the SMP.](#)~~Comprehensive Plan is part of the~~

~~SMP while the shoreline use regulations that implement the goals and policies of the SMP are contained in San Juan County's Unified Development Code.~~

Shoreline Master Program

San Juan County's SMP was developed to fulfill the requirements of the ~~SMA~~. [State of Washington's Shoreline Management Act \(SMA\)](#). The intent of the SMP is to manage the use and development of the shorelines of San Juan County, giving preference to water-dependent and water-related uses and to encourage that shoreline development and use occurs in harmony with natural conditions (San Juan County ~~2000~~).

~~As with~~2002). [As in](#) Whatcom County, marine waters within San Juan County are designated shorelines of statewide significance. This designation would apply to the entire portion of the proposed [GSX-US pipeline](#) route in San Juan County. ~~San Juan County's policies for managing shorelines of statewide significance include:~~

[SMP policies applicable to the GSX-US project that are particularly relevant are summarized below in descending order of preference.](#)

- Recognize and protect the statewide interest over the local interest.
- Preserve the natural character.
- Use in ways that will produce long-term benefits as opposed to short-term benefits or conveniences in accordance with the following:
 - Actions that would commit resources to irreversible uses or would detrimentally alter natural conditions characteristic of such shorelines should be severely limited.
 - The short-term economic gain or convenience associated with a proposed development should be evaluated in relationship to ~~long-term~~[long-term](#) and potentially costly impairments to the natural environment.
 - ~~The visual impact of every proposed project should be thoroughly evaluated and adverse impacts should be minimized.~~
- Protect the natural resources and systems. Areas containing unusual or fragile natural resources or systems should be left undeveloped.
- ~~Increase public access to publicly owned areas.~~
- ~~Increase recreational opportunities for the public.~~

The marine waters of San Juan County are also designated as Aquatic by the county's SMP. The purpose of the Aquatic environment is to protect the quality and quantity of the water, to preserve the water surfaces and foreshores for shoreline dependent uses, such as navigation, commercial fishing, recreation, water-dependent industry, marinas and aquaculture, and to preserve the aquatic area's natural features and resources (San Juan County ~~2000~~).[2002](#)). Management polices for the Aquatic environment include:

- Ensure that developments are compatible with the adjoining upland environment.
- Maintain the natural circulation and volume of water to the greatest extent possible.
- Prohibit structures that are not water-dependent.

- Prohibit activities and uses of a permanent nature that will substantially degrade the existing character or habitat value of an area, unless the public interest clearly will be better served by approval of the proposed activity or use.
- Locate and design developments and activities using navigable waters or their beds to minimize interference with surface navigation, to minimize water quality impacts, to minimize adverse visual impacts, and to allow for the safe, unhindered passage of fish and animals.
- Protect fishing and recreational uses of the water, in appropriate areas, against competing uses that would substantially interfere with those activities.
- Encourage the joint use of structures that intrude into aquatic areas, such as docks, piers, jetties, breakwaters and bulkheads, etc., if the development is determined to be appropriate for the site and if adverse cumulative impacts can be mitigated by joint use.
- Prohibit motorized travel in land-based vehicles, provided that such travel should be permitted for official emergency vehicles, [for](#) boat launchings, [for purposes of undertaking](#) authorized construction and/or repair activities, and for aquaculture when specifically approved.

[Aquatic Environment \(San Juan County SMP 3.3G\). The aquatic environment consists of all waterbodies under the jurisdiction of the SMA and within the boundaries of San Juan County; it includes the water surface, underlying lands, and the water column, including but not limited to bays, straits, harbors, coves, estuaries, tidelands, and lakes. The purpose of the aquatic environment designation is to protect the quality and quantity of the water; to preserve the water surfaces and foreshores for shoreline-dependent uses such as navigation, commercial fishing, recreation, water-dependent industry, marinas, and aquaculture; and to preserve the aquatic area's natural features and resources.](#)

[Management policies applicable to the GSX-US project include:](#)

[Policy 1. Developments should be compatible with the adjoining upland development.](#)

[Policy 2. Maintain the natural circulation and volume of water to the greatest extent possible.](#)

[Policy 3. Prohibit structures that are not water-dependent.](#)

[Policy 4. Prohibit activities and uses of a permanent nature that will substantially degrade the existing character or habitat value of an area, unless the public interest clearly will be better served by approval of the proposed activity or use.](#)

[Policy 5. Locate and design developments and activities using navigable waters or their beds to minimize interference with surface navigation, to minimize water quality impacts, to minimize adverse visual impacts, and to allow for the safe, unhindered passage of fish and animals.](#)

[Policy 6. Protect fishing and recreational uses of the water in appropriate areas against competing uses that would substantially interfere with those activities.](#)

Utilities and Capital Facilities (San Juan County SMP 3.5.O). These shoreline use policies apply to services and facilities that produce, transmit, carry, store, process, or dispose of electrical power, communications, oil, and gas.

Management policies applicable to the GSX-US project include:

Policy 2. Locate utilities, capital facilities, and associated rights-of-way outside of the shoreline area to the maximum extent possible, or locate them within existing transportation and utility sites, rights-of-way, and corridors. Joint use of rights-of-way and corridors should be encouraged. When utility lines, connections, and pipes require a shoreline area location, they should be placed underground or located so as to protect scenic views, whenever practicable.

Policy 3. Prohibit utilities and capital facilities in marshes, bogs and swamps, estuaries, critical wildlife areas, or other unique and fragile areas unless no feasible alternative exists (San Juan County 2002).

In its request for Certification of Consistency with the Washington State CZM Program and application for Shoreline Permit to San Juan County (June 2001), GSX-US stated that it would comply with the policies and regulations set forth in the San Juan County SMP.

Unified Development Code

Section 18.30 of the Unified Development Code contains specific regulations to implement the land use policies in the Comprehensive Plan. Two subsections contain regulations applicable to the proposed GSX-US project: 18.30.120 (geologically hazardous areas) and 18.30.160 (fish and wildlife habitat conservation areas).

Geologically Hazardous Areas. Geologically hazardous areas are classified in three categories according to the probability of hazardous geologic activity. Category III relates to seismic hazards and declares that San Juan County in its entirety is located within Seismic Zone 3 in accordance with the Uniform Building Code. Development activities within the zone are required to conform to the applicable provisions of the Uniform Building Code, which contains structural safeguards to reduce the risks from seismic activity.

Fish and Wildlife Habitat Conservation Areas. Applicable to the GSX-US project is Upland Category I for areas that have a primary association with bald eagles, which are protected under the Washington State Bald Eagle Protection Rules (WAC 232-12-292), as well as the federal Bald Eagle Protection Act and Endangered Species Act. Category I habitats must be protected pursuant to the state rules, and a cooperative site management plan must be developed whenever activities that alter habitat are proposed near a verified nest territory or communal roost (San Juan County 2003).

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

Permit applications for site acquisition, facility design, construction and operation will be made to the Oil and Gas Commission and the British Columbia Utilities Commission. Local governments will apply conditions of approval through the processes of rezoning, development, and other permits. On similar projects, TGVI has successfully addressed permitting issues and received all required approvals from local governments.

No Action Alternative

Because the new cogeneration facilities would be located at NorskeCanada's existing mill sites, no land use impacts have been identified.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.7.3 Issue 27: [Agricultural Lands](#)

Issue Summary

Description of Problem

The [FERC](#) Final EIS does not include a discussion of measures to mitigate the permanent conversion of agricultural land to utility uses, nor does it include discussion of the short-term or long-term impacts on agricultural crops as a result of project construction and operation.

Ecology Requirement

Include a discussion of measures to mitigate the permanent loss of agricultural land, and an analysis of the proposal's impacts on agricultural crops in the environmental review.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

During the construction process, the GSX-US project would temporarily affect approximately 329 acres of agricultural land. Of that total, approximately 14 acres of hay meadow and pasture would be lost for the life of the project (Resource Report 5, pg. 5-8).

In the GSX-Canada project, 28.2 acres of agricultural land would be at least temporarily affected by pipeline construction. No estimate is available for the number of acres of agricultural land that may be permanently lost (GSX-Canada Application, Vol. IV, pg. 7-104).

Terasen Gas Alternative

Information on potential impacts of the Terasen Gas Alternative on agricultural lands is not available.

No Action Alternative

Information on potential impacts of the NorskeCanada proposal on agricultural lands is not available.

Mitigation Measures

Proposed Action

GSX-US would compensate farmers based on fair market value for both temporary and long-term losses of agricultural productivity (Resource Report 5, pg. 5-8). GSX-US would also adopt and implement the mitigation procedures outlined in the FERC Upland Erosion and Control, Revegetation and Maintenance Plan during project construction. GSX-US would salvage, store, protect, and respread topsoil to return agricultural lands to pre-construction productivity. Measures to restore disturbed areas would include relieving compaction, mulching, fertilizing, preparing the seedbed, and revegetation (Resource Report 7, pg. 7-7).

The GSX-Canada pipeline would be aligned where feasible to avoid agricultural lands. On those lands that would be affected, GSX-Canada would ensure a minimum depth of cover of 60 inches; in many cases, the depth of burial would be greater. GSX-Canada would ensure that all equipment is cleaned prior to starting construction in order to minimize the potential to import golden nematodes and noxious weeds (GSX-Canada Application pg. 7-103).

Terasen Gas Alternative

Because the nature and extent of potential impacts of the Terasen Gas Alternative on agricultural lands has not been identified, mitigation measures are not proposed.

No Action Alternative

Because the nature and extent of potential impacts of the NorskeCanada proposal on agricultural lands has not been identified, mitigation measures are not proposed.

Significant Unavoidable Adverse Impacts

With implementation of proposed mitigation measures, significant unavoidable adverse impacts would not be expected.

3.6 RELIABILITY AND SAFETY

3.6.1 Applicable Sections in FERC Documents

Please refer to Section 3.13 in the FERC Final EIS and Resource Report 11, Reliability and Safety, in Exhibit F-1 of GSX-US's original application to FERC.

3.6.2 Issue [25: Pipeline Protection Measures](#)

Issue Summary

Description of Problem

Pipeline protection measures need further discussion and clarification; emergency situation delay response time information is not adequate.

Ecology Requirement

Overall, protection measures need to be more specifically addressed. Discussion regarding management of the gas from valve to valve during an emergency is needed. Because of the history of pipeline safety in the region, protection and safety are issues of concern that need to be more fully addressed.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

Impacts of proposed project would not occur.

Mitigation Measures

Proposed Action

GSX-US

The GSX-US pipeline would be designed, constructed, operated, and maintained in accordance with the federal Department of Transportation's *Minimum Federal Safety Standards* (49 CFR 192), which is the federal safety standard used in the transportation of natural gas. The following sections contain additional information to address the specific safety-related concerns expressed by Ecology.

Leak Detection: Leak detection is typically accomplished on natural gas transmission pipeline systems using a combination of regular ground and aerial surveillance, continuous monitoring of system flow parameters, and communications with landowners and tenants. These methods are considered to be sufficient under normal conditions. The unique characteristics of the marine pipeline portion of the GSX-US project present challenges that may not be adequately addressed by a normal application of these conventional leak detection methods. GSX-US is in the preliminary phases of designing a supervisory control and data acquisition (SCADA)-based leak detection system that would address some of the unique characteristics of the marine pipeline and would ultimately provide an increased level of safety and reliability.

The SCADA leak detection system would be based on a computer program that would continuously monitor the gas pressure, temperature, and volume of the system. The program would compare the actual pipeline throughput under current operating conditions with the throughput calculated by a system simulator. If the difference between the actual system throughput and the calculated system throughput exceeds a certain threshold, the program signals the discrepancy and further analysis would be required. It would then be necessary to determine if the cause of the imbalance is due to an actual leak or possibly other causes such as inaccurate transmitters or fluctuations in line conditions.

The system would be designed based on the specific parameters of the GSX-US pipeline with a minimum design detection limit of 10% loss of throughput in a 24-hour period. The system would be designed and initially installed using thresholds and parameters based on computer simulations. However, the actual system parameters would be finalized after the pipeline is in service and the system has been adjusted for actual operating conditions. Response times would depend on a number of factors related not only to the design of the system, but also to the nature of the situation. For example, very small leaks would be detected and identified over a greater time period than would larger leaks. The system would be designed such that larger leaks would be identified very quickly. If a leak were detected, system flow could be stopped immediately by remote operators from the gas control center or by local operations personnel.

The preliminary design suggests that the smallest leak that could be identified by the proposed leak detection system would be about a 1-inch-diameter hole on the U.S. onshore pipeline or about a 1/8-inch-diameter hole on the marine pipeline (difference is due to higher pressures on

marine pipeline), either case being equal to about 1% of the total throughput of the GSX-US system.

The leak detection system would be monitored 24 hours a day, 7 days a week, 365 days a year at the gas control center in Salt Lake City, Utah. The system would provide continuous information to the control center operators, and would have appropriate threshold and alarm values set such that warnings would be provided to the operators when critical parameters are exceeded.

Many other parameters on the GSX-US system (separate from the leak detection system) also would be monitored by the control center and by field personnel that would assist in the evaluation of system changes and potential leaks. For instance, if a major disruption in flow occurred, it would be identified almost immediately in the control center through monitoring systems separate from the leak detection system.

Integrity Evaluation: The GSX pipeline would apply a Risk Management Process (RMP) as part of a systematic and comprehensive Integrity Management Plan to reduce the risk of pipeline failure and the resulting consequences related to a failure. The process would integrate information from various sources such as a geographic information system (GIS), cathodic protection data, and in-line inspections to better identify and analyze the threats to the integrity of the pipeline. Through a formal and detailed ranking process, projects and activities would be identified to mitigate potential system integrity threats, thereby reducing the likelihood of failure. In addition, the RMP would examine the consequence of potential releases and explore opportunities to minimize impacts on public safety, health, business, and the environment.

The process would also include the use of an Integrity Assessment Program (IAP) that includes a database of all risk factors to the pipeline. The data would include soil data, depth of cover, geologic hazards, pipe data, appurtenance data, operating data, third party damage factors, and population density. The program would analyze the data to determine risk levels for different segments of the system. This information would be used to assist in determining appropriate maintenance activities, areas that require additional measures, or other integrity evaluation activities. This program would assist in determining appropriate intervals for internal inspections, close interval surveys, and other monitoring.

Check Valves: Check valves are devices used in pipelines for restricting flow to one direction. They are most often used at locations where pipelines connect to another pipeline (either a supply source or a delivery point) known as “interconnections.” On the GSX-US pipeline, check valves are proposed at interconnections. Check valves used elsewhere along the pipeline would add no real value and would not increase the safety or reliability of the system. There are three proposed interconnections on the GSX-US system. Two proposed interconnections, one to the existing Westcoast system and one to the existing Northwest Pipeline system, are located at Sumas, Wash. A check valve would be installed at both interconnects. The check valve would only allow gas flow into the GSX-US system and would prevent the backflow of gas from GSX-US into either the Westcoast or the Northwest system. The third interconnection would be located on Vancouver Island to connect GSX-US with the TGVI pipeline. A check valve would be installed at the Terasen Gas interconnection and would only allow gas flow from the GSX-US

pipeline to the Terasen Gas system and would prevent backflow. Check valves are used for operational and business-related reasons rather than for safety.

Mainline Valves: Mainline block valves are proposed on the GSX-US pipeline in six locations as follows:

- MP 0.0 (Sumas interconnection site)
- MP 7.6
- MP 15.1
- MP 19.8
- MP 26.3
- MP 32 (Cherry Point compression site)

These valves would be used to stop the flow of gas and to isolate smaller sections of the pipeline. With the exception of the valves at Cherry Point and Sumas, local operations personnel must physically operate the valves. The valves at Cherry Point and Sumas could be closed by remote operators from the gas control center in Salt Lake City or by local operations personnel.

In addition to the valves listed, three valves exist in Canada, including one immediately downstream of where the pipeline comes onshore onto Vancouver Island. This valve could be remotely closed from the gas control center, and along with the valve at Cherry Point would allow the isolation (remote if necessary) of the entire marine section of the pipeline. Spacing between the valves would conform to Class 3 criteria even though the entire GSX-US route is Class 1 or Class 2 at this time.

All mainline block valves would be equipped with blowdowns on both sides of the valve. The blowdowns consist of an aboveground riser or pipe segment and a valve. In case of emergency or for certain maintenance activities, the appropriate pipeline segment could be isolated by closing the nearest valve on both ends of the segment. Any remaining gas would then be safely vented to the atmosphere through the blowdowns.

Staff Training: Williams Pipeline personnel at the Sumas, Washington, district office would operate and maintain the U.S. portion of GSX. While additional personnel may need to be added to cover the additional work, existing staff would be involved in the critical aspects of operating and maintaining the GSX-US system. Williams Pipeline would follow the training as outlined in its existing Operations and Maintenance Manual. Employees would be trained based on work activities. Employees must also pass operator qualifications for core competency skills. Refresher training would be conducted as needed. Employees would participate in health and safety training during district employee meetings. The training employees receive would be documented in a computer-based management system.

Third-Party Damage Prevention: Williams Pipeline performs numerous activities and uses a variety of tools to protect its assets and the public from third-party damage. Those activities include the following:

- Weekly aerial surveys, weather permitting, to view any activity along the right-of-way.
- Flyers, letters, brochures, and documents sent to landowners to remind them of the pipeline and its location and to notify Williams Pipeline Company of any activity along the right-of-way.
- Public education policy and procedure.
- Mutual assistance with local public officials and related operators.
- Policy and procedure to protect facilities from vandalism, terrorists, criminal activity, and similar threats.
- Continuing documented surveillance to monitor changes in class location.
- Leak surveys (without leak detection equipment) at intervals not exceeding 15 months, but at least once each calendar year.
- Leak surveys (with leak detection equipment) in Class 3 locations at intervals not exceeding 7.5 months, but at least twice each calendar year.
- Installing and maintaining line markers.
- Keeping right-of-way cleared and visible.

Washington Utilities and Transportation Commission Issues (Comments on Draft EIS): The Washington Utilities and Transportation Commission (WUTC) serves as an agent for the Department of Transportation's Office of Pipeline Safety (OPS) primarily to inspect pipelines for compliance with 49 CFR 192. In letters from the OPS to FERC and from the WUTC to FERC, it was made clear that the WUTC's comments on the Draft EIS were made in the commission's role as an intervenor and not as an agent for the OPS. It is worth noting, as pointed out by the OPS, that several of the technical comments contained in the WUTC correspondence address matters that vary from the requirements of the applicable portions of 49 CFR 192.

As requested by Ecology, GSX-US is providing the following information to assist in understanding and/or clarifying the issues raised by the WUTC as they relate to federal safety standards. WUTC comments on the Draft EIS and the FERC's responses to those are contained in Appendix O of the Final EIS.

- The WUTC recommends the GSX-US pipeline be odorized for public safety. As mentioned in the FERC's comments to the WUTC (Final EIS Appendix O, SA1-2), there is no Department of Transportation requirement to odorize an interstate transmission pipeline in Class 1 or Class 2 locations. As previously discussed, GSX-US would install a leak detection system and would conduct leakage surveys on a regular basis.
- The WUTC recommends the following: (1) Prior to commissioning of the pipeline, provide an internal inspection survey (smart pig) to identify construction anomalies and establish a baseline for future evaluations; (2) Future smart pig internal inspections should be done at approximately 5-year intervals to identify wall loss from corrosion and third-party excavation damage; (3) A schedule should be established for excavating anomalies that require field inspection and remediation defects that require repair; and (4) Use the data obtained from the internal inspection to perform a risk integrity assessment of the pipeline to determine the appropriate frequency of internal inspections. See the FERC's response to the WUTC (Final EIS Appendix O, SA1-5) and the discussion above under the heading "Integrity Evaluation." GSX-US is also proposing to run an in-line inspection caliper pig to identify any construction anomalies and serve as a baseline for future reference.

GSX-Canada

In case of emergency, GSX-Canada would invoke its Emergency Preparedness and Response Program (EPR). GSX-Canada stated that its EPR would fulfill the requirements of the NEB and the U.S. Occupational Safety and Health Act. The EPR would include the following components:

- Program Development (Hazard Assessment)
- Emergency Procedures Manual
- Liaison Program (First Responders)
- Continuing Public Education Program
- Emergency Response Training
- Emergency Response Exercises
- Incident and Response Evaluation
- Emergency Response Equipment

In its July 2003 ruling, the Joint Review Panel concluded that GSX-Canada had taken an acceptable approach in identifying and assessing hazards associated with the project. The panel further concluded that GSX-Canada had designed the terrestrial section of the pipeline for a Class 3 designation, which meets or exceeds the requirements of current regulations. With these mitigation measures in place, the panel concluded that significant adverse environmental impacts from accidents and malfunctions would be unlikely.

Terasen Gas Alternative

Public safety at compressor stations will be ensured by fully enclosing these areas with a fence. In addition, construction will be in compliance with all building codes and will have the benefit of current safety practices. Each station will be remotely controlled with state of the art emergency reporting and shutdown equipment and will be monitored 24 hours per day from the Terasen Gas control center in Surrey, BC. TGVI has emergency response procedures to effectively deal with emergencies related to compressor facilities and the pipeline.

LNG facilities have a proven public safety record. No LNG accidents have affected the general public in North America in the last 55 years. Hundreds of such facilities, constructed to rigorous design codes, are safely operating in North America and elsewhere in the world. Terasen Gas's existing Tilbury LNG facility has operated safely without incident since being placed into operation in 1970.

No Action Alternative

All of the NorskeCanada mills have strong safety records focusing on prevention and planning. Appropriate management will be exercised around the operation of the cogeneration facility, the aqueous ammonia storage facilities, and the natural gas supply. Dedicated mill emergency response teams are currently trained in the handling of problems related to this type of infrastructure.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.5 PLANTS AND ANIMALS

3.5.1 Applicable Sections in FERC Documents

Please refer to Section 3.6 in the FERC Final EIS and Resource Report 3, Fish, Wildlife, and Vegetation, in Exhibit F-1 of GSX-US's original application to FERC.

3.5.2 Issue 15: [Impacts of Turbidity](#)

Issue Summary

Description of Problem

The FERC Final EIS conclusion that turbidity will not affect salmonids or other ocean fish is not documented. On page 3-69, the Final EIS states, "based on the published data, it is unlikely that the locally elevated turbidity generated by pipeline installation would directly affect juvenile or adult salmonids or other marine fish that could be present." No such published data are cited in either this section or in Section 3.6.1 for ocean fish.

Ecology Requirement

Provide citations in the environmental review of the appropriate literature to support the above conclusion.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

The following citations are referenced on pages 3-63 and 3-65 of the FERC Final EIS, and shown in Appendix M – References, as follows:

Bisson, P. A, and R. E. Bilby. 1982. Avoidance of Suspended Sediment by Juvenile Coho Salmon. *North American Journal of Fisheries Management* 4:371-374.

Blais, D. P., and D. L. Simpson. 1997. The effects of a buried natural gas pipeline on water quality, stream habitat, and biotic populations within high quality cold water streams in upstate New York. In *Sixth International Symposium on Environmental Concerns in Rights-of-Way Management*. Eds. J. R. Williams, J. W. Goodrich-Mahoney, J. R. Wisniewski, and J. Wisniewski. February 24-26, 1997. New Orleans, Louisiana. Elsevier Publishers, New York, New York.

Cyrus, D. P., and S. J. M. Blaber. 1987b. The Influence of Turbidity on Juvenile Marine Fishes in Estuaries. Part 2: Laboratory Studies, Comparisons with Field Data and Conclusions. *Journal of Experimental Marine Biology and Ecology* 109:71-91.

Servizi, J. A. 1988. Sublethal Effects of Dredged Sediments on Juvenile Salmon. Pages 57-63 in C.A. Simenstad, editor. *Effects of Dredging on Anadromous Pacific Coast Fishes*. University of Washington, Seattle.

Vincour, W. S. and J. P. Shubert. 1987. Effects of gas pipeline construction on the aquatic ecosystem of Canada Creek, Presque Isle County, Michigan. Gas Research Institute Report GRI-87/0027.

Whitman, R. P., T. P. Quinn, and E. L. Brannon. 1982. Influence of Suspended Volcanic Ash on Homing Behavior of Adult Chinook Salmon. *Transactions of the American Fisheries Society* 111:63-69.

Terasen Gas Alternative

No analyses on the potential impacts of turbidity are available for the Terasen Gas Alternative.

No Action Alternative

No analyses on the potential impacts of turbidity are available for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.5.3 Issue [16: Non-Listed Federal and State Species](#)²

Issue Summary

Description of Problem

The FERC response to Draft EIS comments LA1-13 and 14 with respect to non-listed federal and state species is not adequate. The only marine fish species discussed in Section 3.6.2 that are not mentioned in the Essential Fish Habitat species listed in Table 3.6.3-1 are Pacific herring, surf smelt, and (Pacific) sand lance. Species such as Puget Sound rockfish, rock greenling, white-spotted greenling, wolf eel, and all the sculpin species (except cabazon) that could be affected are not mentioned anywhere.

Ecology Requirement

Summarize and include information from Appendix 3-1 of Resource Report 3, Fish, Wildlife, and Vegetation, in Exhibit F-1 of GSX-US's original application to FERC and information from the surveys of subtidal benthic biodiversity and associated habitats along the proposed Georgia Strait pipeline route in the SEPA document.

Affected Environment

Information on marine fish in the project area was provided in Resource Report 3, Appendix 3-1, Section 2.2. The reference for this report is:

Fairbanks, C. and M. Terra. 2000. Georgia Strait Crossing Project nearshore marine habitat survey and review of existing information of marine biology and fisheries resources. Tech. rep. by Duke Engineering & Services for WESTECH Environmental Services, Inc.

Additional marine fish information was collected during two remotely operated vehicle surveys sponsored by GSX-US. The reference for this report is:

McDaniel, N.G. and R. Glaholt. 2002. Surveys of subtidal benthic biodiversity and associated habitats along the proposed Georgia Strait Crossing pipeline route. Tech. rep. by TERA Environmental Consultants for Georgia Strait Crossing Pipeline Ltd.

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No analyses of marine fish were available for the Terasen Gas Alternative.

No Action Alternative

No analyses of marine fish were available for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.5.4 Issue [17: Impacts to Fisheries](#)³

Issue Summary

Description of Problem

The Final EIS does not discuss impacts on the fishing industry, and specifically the potential significant impact on the bottom trawl fishery. Further, no mitigation measures were recommended.

Ecology Requirement

Include a discussion of fishing issues, impacts, and mitigation measures in the environmental review should. More thoroughly evaluate and discuss the cumulative effect the project would have on the sea bottom and bottom trawling.

Affected Environment

No additional analysis required.

Impacts

GSX-US

In February 2001, GSX-US met with WDFW personnel at the WDFW's La Conner field. One of the specific objectives of this meeting was to discuss offshore fishing areas in relation to the marine alignment sheets. WDFW personnel stated that fishing pressure in the vicinity of the project is heaviest comparatively close to the Washington coast. Farther offshore in the Georgia Strait, fishing pressure is not as intense near the proposed marine pipeline route as it is farther to the north. The commercial fishing areas were identified in Resource Report 3 (refer to Figures 3.1-1, 3.1-2, and 3.1-3, and accompanying text).

In December 1999, the Applicant communicated with a commercial fisherman via telephone. The fisherman expressed concern about the pipeline interfering with bottom fishing efforts, and particularly damage to or from the pipeline on fishing gear. As a follow up to this conversation, GSX-US met with three commercial fishermen, including a crab fisherman, in Bellingham, in January 2000. At that meeting, the fishermen again expressed concerns about bottom trawl gear encountering the pipeline. They stated that they generally fish in waters varying from about 120 to 720 feet deep, but that their operations are confined to the first eight miles of the marine pipeline route. They stated that they didn't think the remainder of the U.S. portion of the marine route would greatly affect commercial fishermen. This comment was consistent with the information on fishing pressure provided by WDFW during the February 2001 meeting.

The crab fisherman stated that most crab fishing is done in waters varying from about 24 to 300 feet in depth and expressed concerns about crabs being able to cross a pipeline lying on the bottom. During a meeting in April 2000, WDFW personnel stated that most commercial and recreational crab fishing occurs in water less than 100 feet deep. This communication was also reported on page 3-6 in Resource Report 3. However, as reported on page 3-6 of Resource Report 3, the Cherry Point area has a comparatively small commercial crab harvest. In response to crab fishing concerns raised by both U.S. and Canadian parties, the Applicant sponsored a study to assess the potential for a pipeline to act as a barrier to crabs and certain other invertebrates. The findings of that study, contained in Appendix 3-1 of the Resource Report 3, are summarized below.

Disruption of Commercial or Recreational Fishing

Construction of the pipeline has the potential to temporarily disrupt commercial and recreational fishing (marine construction of the pipeline is expected to take about 30 days). GSX-US identified the primary commercial fishing areas in Resource Report 3 and provided an additional discussion of the fisheries resources and commercial fishing in Appendix 3-1 of Resource Report 3. During pipe laying and trenching operations, fishermen will be less likely to fish in proximity to the moving construction spread. Crab fisherman active in the area during construction may be forced to pull gear to avoid it from being damaged or lost. However, because the vessels directly involved in pipeline construction will move very slowly (approximately one mile per 24-hour period), it is expected that commercial and recreation fishermen will be able to readily avoid gear losses resulting from construction vessels.

Impacts to the fishing industry after the pipeline is in operation are also expected to be minor. Although pipelines sometimes do interfere with fishing gear, it has also been reported that pipelines are fished by some trawlers, since some minor artificial reef effect may occur whereby fish congregate and greater catch rates may occur (DTI Oil and Gas Environmental Consultation Site 2003). Evidence suggests that pipelines up to 40 inches in diameter cause only minimal gear damage. However, they may affect the gear geometry and efficiency once past the obstruction (Valdemarsen 1993). Seabed evaluations conducted by GSX-US consultants identified blocks and boulders greater than 2.5 feet in diameter along the pipeline route. These are natural obstructions on the seabed that fishermen normally have to contend with (Jacques Whitford and Associates 2002; Terra Remote Sensing Inc. 2001).

Impacts to Fisheries Resources

Impacts to marine fisheries were discussed on pages 3-68 through 3-88 of the FERC Final EIS. GSX-US also discussed potential impacts in Resource Report 3. GSX-US recognizes that any project activities that significantly affect marine biota also have the potential to effect commercial and recreational fisheries.

GSX-Canada

Potential environmental effects to fish from pipeline activities identified by GSX-Canada in its environmental assessment included direct effects through turbidity and mortality; habitat alteration; and sensory disturbance. Soft-bottom fish habitats could be temporarily altered as a result of pipe trenching.

GSX-Canada contended that most adult fish have sufficient mobility to avoid being crushed by pipe lay and trenching operations. In addition, most potentially affected fish species have free-floating, often pelagic eggs and larvae, which should also not be vulnerable to burial or substantial direct mortality. GSX-Canada also predicted that rapid sediment covering of the pipe in the trench and subsequent more gradual natural infill of the trench would result in the functional restoration of the structural and biological productivity of these communities for fish. Where the pipeline is exposed, new long-term hard-bottom substrate would be created on the seabed. In these areas, a reef effect would likely occur and the pipe could be expected to be colonized to varying degrees by, or to attract, otherwise, a variety of fish species (e.g., rockfish, sculpin, and lingcod).

In its report, the Joint Review Panel concluded that potential effects of turbidity and mortality, habitat alteration, and sensory disturbance to deepwater marine fish from the proposed GSX-Canada pipeline would not be significant (National Energy Board 2003).

Terasen Gas Alternative

No analyses of fisheries impacts were available for the Terasen Gas Alternative.

No Action Alternative

No analyses of fisheries were available for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

Based on the information available for commercial fishing as well as other project concerns, GSX-US proposed several mitigation measures to address the concerns raised by commercial fishing interests, including:

- One of the criteria used to select the marine route location was to minimize, to the extent practicable, the distance traversed through known important marine areas. Due to the extent of the commercial fishing areas along the northwest Washington coast (refer to Figures 3.1-1, 3.1-2 and 3.1-3 in Resource Report 3), it would not be possible to avoid these areas altogether. However, much of the route proposed by GSX-US traverses areas of less intense commercial fishing pressure (page 3-18 of Resource Report 3), as identified by both the Washington State agencies and commercial fishermen.
- GSX-US recognized (page 3-14 of Resource Report 3) that construction of the marine portion of the pipeline could interfere with commercial or recreational fishing. However, due to the comparatively small size of the area affected by pipeline construction activities at any one time, GSX-US believes that this impact would not be substantial.
- GSX-US has proposed to use the HDD technique to install the pipeline from onshore in the Cherry Point area to a depth of –130 feet mean lower low water (MLLW). This depth would avoid or minimize effects to nearshore marine habitats that are recognized for their value to commercial and recreational fishing resources, as well as other resource values
- On page 3-16 of Resource Report 3, GSX-US reported the results of a study to determine the barrier effects of a pipeline to crabs and other marine invertebrates. This study concluded that a 21-inch pipeline, buried to one-half its diameter, would not constitute a substantial barrier to the movement of crabs. As discussed on pages 3-15 and 3-16 of Resource Report 3, it is anticipated that the pipeline would settle into the bottom sediments relatively quickly, and that sediment transported along the bottom by marine currents would eventually accumulate around the pipeline. However, GSX-US has proposed to place the pipeline in a shallow trench to a depth of approximately –240 feet MLLW for the first 5.6 miles of the marine route. This burial would ensure that the pipeline does not constitute a barrier to crab movement over most of the fishing depths reported by commercial fishermen, and the depths identified as most important for crab fishing identified by the WDFW.
- The pipe would have a 1.6-inch thick, wire reinforced concrete coating, which will provide additional protection from potential impacts of trawling gear.
- The pipeline would be identified on navigational charts and precautions similar to those for avoiding other existing features (e.g., cables, boulder fields, rock outcrops) would need to be taken by fisherman in the area.
- During pipeline construction, support vessels will act as pilot boats ensuring that fishing vessels are forewarned of the construction activities;

- A general awareness of the pipeline through meetings already held with resource users and a Notification to Mariners prior to construction will further reduce encounters with the pipeline; and
- To notify small boat traffic, notices will be placed at marinas and in local newspapers. The U.S. Coast Guard will be notified and will communicate the location of the construction vessels to inbound and outbound vessels in the project area.

Terasen Gas Alternative

No analyses of marine fish were available for the Terasen Gas Alternative.

No Action Alternative

No analyses of marine fish were available for the NorskeCanada proposal.

Significant Unavoidable Adverse Impacts

With the use of specialized construction, and incorporation of proposed mitigation, significant adverse impacts would not be expected.

3.5.5 Issue [18: Noxious Weeds/Invasive Species](#)⁴

Issue Summary

Description of Problem

The Final EIS states that Class B and C noxious weeds were observed along the proposed route, but does not tell the reader which ones were observed. The analysis does not contain conclusions about whether the proposed project would increase or decrease the prevalence of noxious weeds/invasive species in the project area. The document states that a control plan would be developed. However, without details on what methods (e.g., herbicides, manual removal, surface treatments) would be used, it is difficult to defend a conclusion that weeds would not spread because of the project. It is very likely that any new pipeline right-of-way in Whatcom County has a high likelihood of becoming dominated by invasive species without aggressive maintenance.

Ecology Requirement

Colonization of invasive weed species is frequently a problem in pipeline corridors. Identify the noxious weeds observed during field surveys in the environmental review and analyze impacts to discuss fully the potential effects of the project. Also, evaluate and discuss potential mitigation measures to address these impacts more fully.

Affected Environment

Table 3.3-2 on page 3-65 of Resource Report 3 identifies the noxious weeds observed during resource surveys, including Class B and C weeds. The Resource Report also describes locations in the project area where noxious weeds were most concentrated.

Impacts

Proposed Action

The Resource Report also states “where noxious weeds are already established, they will likely invade the right-of-way.” Based on this statement, and the fact that resource surveys observed 16 different species of Class B and C noxious weeds, it is reasonable to conclude that the proposed pipeline will increase the risk of spread for at least some of these species, particularly in areas of new right-of-way. In particular, many riparian and wetland areas adjacent to the proposed right-of-way are infested with reed canarygrass. Any removal of tree and shrub cover is likely to favor this species.

Terasen Gas Alternative

No analysis of noxious weeds is available for the Terasen Gas Alternative.

No Action Alternative

No analysis of noxious weeds is available for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

GSX-US prepared a Noxious Weed Management Plan and submitted the plan to Whatcom County and Ecology. Page 3-40 of the Final EIS states that the applicant “will focus weed control measures where noxious species are confined to isolated stands within the right-of-way” to prevent new outbreaks. The weed management plan should include measures appropriate to control noxious weeds in upland and wetland conditions. Where application of herbicides is allowed (i.e., uplands), this method would likely be effective in controlling the spread of noxious weeds. Where application of soluble chemicals is prevented by FERC conditions (i.e., within 100 feet of wetlands), manual removal and installation of native plants would be recommended to control the spread of noxious weeds, particularly reed canarygrass.

Terasen Gas Alternative

No analysis of noxious weeds is available for the Terasen Gas Alternative.

No Action Alternative

No analysis of noxious weeds is available for the NorskeCanada proposal.

Significant Unavoidable Adverse Impacts

Implementation of a noxious weed management plan with the characteristics described above would be expected to minimize potential negative environmental impacts from noxious weeds along the proposed right-of-way.

3.5.6 Issue [19: Access Road Impacts to Wetlands](#)

Issue Summary

Description of Problem

The Final EIS indicates that GSX-US would need a variance from FERC for access roads or staging areas that disturb wetlands. The Final EIS acknowledges that four access roads and the Gulf Road pipestring fabrication would affect wetlands. However, no details are provided regarding the extent of the potential impacts.

Ecology Requirement

Include the information on the Preliminary Construction Alignment Sheets regarding the change of the access road to avoid wetlands in the SEPA document.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

At the request of FERC, GSX-US revised its plans in order to avoid the placement of fill materials for access roads in wetlands. In one case, GSX-US relocated an access road from a location outside the construction right-of-way to a location within the right-of-way in order to avoid placement of fill in a wetland. The revised access road alignments are shown on the updated Preliminary Construction Alignment Sheets provided to Ecology and the EIS consultant.

GSX-Canada

The proposed GSX-Canada pipeline route traverses eight wetlands greater 0.02 acres in size that were documented and characterized in the vegetation assessment of the project area. The proposed route does not traverse any wetlands designated for the Cowichan subunit of East Vancouver Island (GSX-Canada, Volume 4, Section 5, pg. 28. April 2001).

Terasen Gas Alternative

No analysis of potential wetland impacts is available for the Terasen Gas Alternative.

No Action Alternative

No analysis of potential wetland impacts is available for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No analysis of potential wetland impacts is available for the Terasen Gas Alternative.

No Action Alternative

No analysis of potential wetland impacts is available for the NorskeCanada proposal.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.5.7 Issue [20: Wetland Mitigation Plan](#)⁶

Issue Summary

Description of Problem

The Final EIS states that the compensatory wetland mitigation plan has been filed with the U.S. Army Corps of Engineers and Ecology. While incorporated by reference, it is not readily available to the public for review.

Ecology Requirement

The Applicant will provide a summary of the wetland restoration plan for inclusion in the SEPA document.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

Mitigation Approach

Waterbody and wetland crossings have been avoided where possible. Where unavoidable, measures have been implemented to minimize impacts. Measures to avoid and minimize impacts include:

- Trenchless methods (horizontal directional drilling or conventional boring) will be used where technically feasible to cross important streams (and adjacent wetlands) as determined through consultation with WDFW biologists.
- Drill and bore entry and exit points were located outside forest and scrub-shrub wetlands to the extent possible.
- Valve site locations or layout areas were selected or designed to avoid permanent fill in wetlands.
- The Cherry Point compressor station was relocated from its originally proposed location to avoid permanent fill in a palustrine emergent wetland.
- The alignment and extra work space were designed or modified where possible to avoid wetlands.
- Staging areas, pipe storage sites and other ancillary facilities were selected in upland sites.
- Existing pipeline, road and powerline corridors were followed for most of the route.
- The construction right-of-way was narrowed from 100 to 75 feet (except in agricultural wetlands and certain extra workspace areas).
- Design was modified to minimize extra workspace in wetlands.
- The route was selected to avoid forested wetlands where possible.

This summary and the more detailed Wetland and Riparian Restoration Plan present GSX's proposed mitigation plans to restore waterbody/riparian areas and wetlands that could not be avoided during construction. The mitigation approach for unavoidable impacts includes onsite

restoration, compensatory mitigation for non-riparian wetlands and compensatory mitigation for riparian areas.

Onsite Restoration

Onsite restoration will be implemented so that no net loss of acreage is associated with riparian areas or wetlands. Riparian and wetland functions, however, will be temporarily affected, especially in shrub- and tree-dominated areas. Functions will also be affected during the life of the project as a 10-foot wide zone centered over the pipeline is maintained in herbaceous vegetation and woody plants are limited to a 15-foot height in a 30-foot wide zone centered over the pipeline.

The primary goal of restoration is to reestablish vegetation communities comparable to those impacted by proactively seeding and planting native species that are present in riparian areas and wetlands disturbed by the project. Wetland and Waterbody Construction and Mitigation Procedures were presented in the Georgia Strait Crossing Project Final EIS. Those procedures were revised October 2002. Restoration prescriptions are presented in the Wetland and Riparian Restoration Plan. Site-specific restoration specifications have been developed for named streams including all streams with fisheries. Typical restoration specifications will be applied to minor tributaries, ditches and non-riparian wetlands.

Woody riparian vegetation occurs at 28 of the waterbodies that will be crossed during construction, 7 of which will be crossed using trenchless methods and 8 of which are ditches with only a few scattered shrubs or trees. Where it occurs, woody vegetation will be cut off at ground level within the construction right-of-way. Tree stump removal and grading activities will be limited to directly over the trench, however, stumps or root systems not affected by trench excavation will be left in the ground to provide streambank stability. Streambanks will be stabilized and temporary sediment barriers installed within 24 hours of completing the crossing. Bank stabilization will be completed prior to returning flow to the channel. All streambanks, channelized streams and ditches will be restored to their approximate original contours.

All streambeds and ditch bottoms will be restored to their original configuration. Clean gravel will be used for the upper 1 foot of trench backfill in the streambeds of selected waterbodies that contain fisheries. Remaining water bodies with identified fisheries will be crossed using trenchless methods. Clean gravel will also be used in the upper 1 foot of trench backfill in the streambeds of open-cut impaired waterbodies (303[d] listed sites) to stabilize the trenchline and reduce potential sedimentation.

Woody debris will be placed in the floodplains of selected waterbodies to increase biologic diversity for plants and animals, provide protection for establishing vegetation, contribute complexity to the floodplain, and increase floodplain roughness, thereby decreasing potential overbank flow velocities and resultant avulsion.

Topsoil will be respread over those areas from which it was stripped; redistribution depths will vary depending on stripping depths. Topsoil will not be mixed with spoil material at any time during salvage or replacement activities. Amendments (lime, fertilizer, mulch) will not be

applied to redistributed soils. GSX-US will cross agricultural wetlands in a manner consistent with the way the land is normally managed for agriculture. Soils that have been compacted, are heavily crusted or consist of large clods will be chisel plowed, disced, or harrowed, depending on equipment limitations. The seedbed will be left in a roughened condition adequate to capture precipitation, reduce runoff, and provide microsites for seed germination.

Three revegetation types that include primarily hydrophytic species present in non-agricultural preconstruction communities will be established: Herbaceous Wetland, Shrub Wetland, and Forested Wetland. The Herbaceous Wetland revegetation type is a composite of existing palustrine emergent plant communities on the project. The Shrub Wetland and Forested Wetland revegetation types are equivalent to palustrine scrub-shrub and palustrine forest communities present on the project.

Proposed seeding and planting specifications are described in detail in the Wetland and Riparian Restoration Plan. Commodity crops in agricultural lands will be revegetated according to landowner preference. Where the GSX disturbance corridor overlaps existing cleared rights-of-way, herbaceous species that reflect existing vegetation on those rights-of-way will be seeded.

Permanent erosion and sediment control measures primarily include established vegetation cover and water bars. Erosion control fabrics will be applied to some areas to provide interim erosion control until vegetation cover has been established. The use of mulch is not proposed at waterbody/riparian or wetland areas. All existing non-agricultural riparian buffer zones that are disturbed will be revegetated with appropriate native species.

The construction schedule across waterbodies will be in compliance with waterbody timing windows described in the Final EIS. In-stream construction activities are limited to the period from June 15 to September 1 for those waterbodies known to contain chinook salmon and from June 15 to October 15 for all other waterbodies with fisheries. In general, waterbodies will be crossed during periods of low flow that will avoid periods of resident and spawning species' life cycles. Wetlands are proposed to be crossed during the summer/fall season when water levels should be lower. Revegetation activities will be determined by construction schedules, seasonal climatic conditions and site conditions. Seeding and planting will be coordinated with other reclamation activities to occur as soon after seedbed preparation as possible, weather and soil conditions permitting, ideally during the locally recognized planting season (September 15 to October 15).

Restored waterbodies/riparian areas and wetlands will be protected utilizing traffic management, maintained erosion and sediment control structures, fencing, selective vegetative maintenance, and noxious weed control. Monitoring and inspection will be conducted during construction/restoration activities to ensure environmental compliance. Following construction and restoration, the GSX pipeline right-of-way will be evaluated to assess revegetation success, and the effectiveness of erosion and sediment control measures. The right-of-way will also be patrolled from the air on a regular basis.

Compensatory Wetland Mitigation

To compensate for the temporary and life-of-project changes in wetland functions, a compensatory wetland mitigation area is being developed. A Preliminary Compensatory Wetland Mitigation Plan was provided to the regulatory agencies in April 2002. The preliminary plan was revised to address comments from the Corps (May 5, 2003) and resubmitted to the Corps. Comments from Ecology (May 29, 2003) were responded to by letter with a commitment to provide additional compensatory wetland mitigation.

The compensatory wetland mitigation site is located along the pipeline route just east of Kickerville Road on land owned by GSX-US (Figure 3-2). The site is currently palustrine emergent wetland, herbaceous upland and recently logged upland forest. The existing herbaceous wetland will be enhanced by shrub and tree plantings, and control of reed canarygrass. Not less than 7.0 acres of forest and scrub-shrub wetland will be developed at this site. In order to meet Ecology's recommended replacement ratios, 9.0 acres of additional wetland enhancement is necessary. The search for another mitigation site has begun, and a similar approach will be proposed on the new site as described above for the Kickerville Road site. Both sites will be monitored for 10 years to ensure mitigation success.

Compensatory Riparian Mitigation

To compensate for the temporary and life-of-project changes in riparian functions, a compensatory riparian mitigation area will be developed. The compensatory riparian mitigation site is located along the pipeline route just west of Jackson Road and east of the proposed Cherry Point compressor station on land owned by GSX-US (Figure 3-3). The site is a tributary to Terrell Creek with a narrow palustrine emergent wetland along the stream and hay meadow either side of the stream. The site will be planted with trees and shrubs creating 2.2 acres of woody riparian vegetation, of which 0.6 acre will be palustrine forested wetland and 1.6 acres will be non-wetland riparian forest. Plantings will be monitored in conjunction with the compensatory wetland mitigation area to ensure adequate tree and shrub survival.

GSX-Canada

The proposed GSX-Canada pipeline route traverses eight wetlands greater 0.02 acres in size that were documented and characterized in the vegetation assessment of the project area. The proposed route does not traverse any wetlands designated for the Cowichan subunit of East Vancouver Island. Any wetlands that cannot be avoided will be restored during reclamation (GSX-Canada, Volume 4, Section 7, pg. 86. April 2001).

Terasen Gas Alternative

No analysis of potential wetland impacts is available for the Terasen Gas Alternative.

No Action Alternative

No analysis of potential wetland impacts is available for the NorskeCanada proposal.

Significant Unavoidable Adverse Impacts

With the use of proposed construction techniques, and incorporation of proposed mitigation, significant adverse impacts would not be expected.

3.5.8 Issue [21: HDD Impacts to Marine Plants and Animals](#)⁷

Issue Summary

Description of Problem

The Final EIS did not adequately address potential impacts to marine vegetation and animals/organisms.

Ecology Requirement

Perform a survey and impact analysis of marine vegetation and animals/organisms, and a mitigation plan prepared and summarized in the SEPA document. Address contingencies for potential impacts to the aquatic reserve in the analysis.

Affected Environment

No additional analysis required.

Impacts

GSX-US

An analysis of potential impacts to marine vegetation and animals/organisms was included on page 3-83 of the FERC Final EIS. A discussion of existing conditions and potential impacts to marine fisheries, wildlife and vegetation resources was also reported in Resource Report 3 of the Environmental Report. The results of a survey of marine vegetation and animals/organisms in the nearshore environment was included in Appendix 3-1 of Resource Report 3.

GSX-Canada

Potential marine environmental effects associated with the HDD for the GSX-Canada project relate primarily to the permanent loss or temporary disturbance of eelgrass habitat. The major impact area would be in the vicinity of the HDD exit hole where suspended sediment and bentonite drilling muds could be transported to nearby eelgrass. Sustained high suspended sediment levels could impair ecological function. Concerns were also expressed about potential effects on nearshore habitat from vessel operation and anchoring. In addition to suspended sediment, concerns were expressed about the potential toxicity of the drilling mud and the viscosifier agent to be used at the HDD marine exit point.

Figure 3-2: Compensatory Wetland Mitigation Site

Figure 3-3 Compensatory Riparian Mitigation Site

In the event that the Vancouver Island shoreline crossing cannot be accomplished using HDD, a partial HDD or full open cut method would be employed. A partial HDD or full open cut of the landfall would raise many of the environmental issues the HDD is intended to avoid. The partial HDD and the full open cut would require excavation through the foreshore area including shallow subtidal and intertidal zones.

For a full open cut, forest cover on the slope would be cleared from the right-of-way and a dragline or equivalent excavator used to trench the slope. In the absence of an intensive bank stabilization and reclamation effort following full open cut construction, chronic erosion and increased foreshore siltation and turbidity could occur. This outcome would result in proportionately more long-term effects on marine vegetation (National Energy Board 2003).

Terasen Gas Alternative

Looping of the existing Terasen Gas pipeline will involve crossing a number of small streams and two major rivers: the Indian River and Squamish River. The two river crossings will be accomplished with directional drilling, the technique used for installation of current pipeline in 1989. Potential impacts associated with these crossings are expected to be similar to those for the GSX-US and GSX-Canada projects. However, the Terasen Gas Alternative does not call for the crossing of any marine shoreline (Terasen Gas 2003).

No Action Alternative

The NorskeCanada proposal does not call for pipeline construction.

Mitigation Measures

GSX-US

GSX-US acknowledges that it may be necessary, pending the consultation with the WDNR, WDFW, NMFS and other applicable agencies required under FERC Condition 21, to repeat its survey of existing conditions prior to construction in order to have the most recent data available for the post-construction analysis. If such a survey is required, it would be conducted after the HDD is completed. This is based on the language in FERC Condition 21 that requires the applicant to "...prepare a plan in consultation with...agencies to mitigate observed impacts." As an initial step, an assessment would be made to determine if the HDD had any impact on marine vegetation. Observed impacts would then be mitigated, in consultation with the state and federal resource agencies (Williams Pipeline Company 2003).

GSX-Canada

To ensure that proposed avoidance and mitigation measures are implemented successfully, the Joint Review Panel recommended that GSX-Canada provide a detailed site-specific environmental management plan prior to initiating HDD activities at the Manley Creek landfall. Furthermore, the Panel expects that GSX-Canada would include in the plan a provision to conduct a post-construction survey to quantify the predicted effect associated with the use of the

drilling mud on marine vegetation at the HDD site and discuss options to mitigate any effects. The Panel concluded that, with the implementation of the proposed mitigation measures and the Panels' recommendation, significant adverse environmental effects from the HDD would be unlikely.

In the event of a failed HDD, the Joint Review Panel accepted the reclamation and restoration measures outlined in GSX-Canada's contingency plan for a partial HDD or open cut. However, to ensure the management of potential effects during construction, the Panel recommended that GSX-Canada not proceed with the partial HDD or open cut method at the landfall without developing a detailed site-specific crossing plan and an eelgrass monitoring plan that receives approval from the National Energy Board. The Panel concluded that, with the implementation of GSX-Canada's proposed mitigation measures and the Panel's recommendation, significant adverse environmental effects of a partial HDD or open cut would be unlikely (National Energy Board 2003).

Terasen Gas Alternative

Terasen Gas's existing pipeline corridor was chosen in 1989 on the basis of geotechnical, environmental, land use, and property ownership considerations consistent with current route selection techniques. Geotechnical considerations were particularly important in the selection of the original route. These considerations included topography, surficial geology, surface and subdrainage, and slope stability. The selection of the best route from a geotechnical standpoint was also important to minimize erosion and sedimentation problems. The original crossing of the Squamish River, considered to be the most environmentally sensitive crossing, successfully used the directional drilling technique. The results of Terasen Gas's original studies and construction techniques would be applied to the proposed pipeline looping projects.

No Action Alternative

The NorskeCanada proposal does not call for pipeline construction.

Significant Unavoidable Adverse Impacts

With the use of specialized construction, and incorporation of proposed mitigation, significant adverse impacts would not be expected.

3.5.9 Issue [22: Measures to Protect Bald Eagles](#)

Issue Summary

Description of Problem

On page 3-98 of the Final EIS, the text lists recommended mitigation measures for impacts on bald eagles. These measures do not include avoidance of important bald eagle breeding and wintering forage periods when GSX-US would conduct pipeline maintenance in the future.

Ecology Requirement

Because supplemental bald eagle surveys will not be conducted until after the SEPA process is concluded, summarize information from Resource Report 3 and from WDFW's Bald Eagle Management Plan in the Supplemental EIS.

Affected Environment

GSX-US

According to Resource Report 3 and WDFW's Bald Eagle Management Plan, one bald eagle nest is located within 0.5 miles of the proposed pipeline route, which is within the California Creek territory, #1405. This nest was discovered during follow-up bald eagle surveys in 2001 and 2002. The proposed pipeline would be 60 feet from the nest tree, and the proposed workspace would be within 40 feet of the tree. In addition, during a site visit by Shapiro and Associates, Inc., Department of Ecology, and Williams Pipeline personnel on February 20, 2003, at least eight adult and juvenile bald eagles were observed roosting in a stand of mixed conifers and hardwoods adjacent to the proposed right-of-way crossing of Bertrand Creek. This site has not been verified as a regular roosting concentration by WDFW or USFWS.

GSX-Canada

Bald eagles occur year-round in the GSX-Canada project area and are a listed species of concern in Canada. Most of the project area has moderate to high capability for bald eagle nesting according to published studies. However, several factors have either directly or indirectly acted to reduce the suitability of many areas for that purpose, especially in the eastern half of the project area. Logging and land clearing undoubtedly removed a large number of potential nesting and perching trees. Intensive human activities may have the effect of reducing the suitability of remaining nesting areas in the eastern portion of the project area. No active or inactive bald eagle nests or bird observations were observed during the breeding bird survey. Five bald eagle observations were made during the wildlife study (GSX-Canada, Volume 4, Section 5, pg. 46. April 2001).

Impacts

GSX-US

Given their close proximity, construction and operation of the proposed pipeline is very likely to disturb bald eagles actively breeding at the California Creek nest or roosting adjacent to Bertrand Creek. While bald eagles have shown considerable ability to acclimate to ongoing human activities, the proposed construction would be an unusual activity that does not normally occur in the vicinity of the California Creek territory. Therefore, the activity would be more likely to disturb breeding birds. Maintenance of the proposed pipeline would be less likely to disturb nesting eagles. However, depending on the specific maintenance activity (e.g., excavation, vegetation clearing, dangerous tree removal) and its timing, it could have some negative impacts to breeding eagles.

GSX-Canada

No site-specific impacts to nesting or breeding eagles were identified in the GSX-Canada studies (GSX-Canada, Volume 4, Section 7, pg. 89. April 2001).

Terasen Gas Alternative

No information on potential impacts to bald eagles of the Terasen Gas Alternative is available.

No Action Alternative

No information on potential impacts to bald eagles of the NorskeCanada proposal is available.

Mitigation Measures

GSX-US

WDFW's California Creek Bald Eagle Management Plan imposes the following conditions to protect the California Creek bald eagle territory:

- No excavation within 50 feet of the nest tree.
- No tree removal within 100 feet of the nest tree.
- All material removed for the trench and piled during pipe installation will be used to refill the trench and/or be spread on adjacent fields and will not remain piled within 50 feet of the nest tree.
- A report from a certified arborist, indicating the health of a danger tree and the need to remove the tree, shall be submitted to WDFW prior to cutting of a danger tree.
- Timing restrictions are strongly recommended for the area within 400 feet of the active nest, but not required.

In addition, mitigation measures on page 3-98 of the FERC Final EIS and FERC Condition 26 in the Final EIS call for pre-construction bald eagle surveys to be conducted by GSX-US according to protocols determined by USFWS and WDFW. The purpose of the surveys would be to determine if any new bald eagle nests have been established in the project vicinity, and that GSX-US would adhere to conditions in the habitat management plan.

A letter from the USFWS to FERC June of 2002 concurs with the GSX-US's determination of "may affect, not likely to adversely affect" for bald eagles. This concurrence is based on the assumption that all activities within 0.25 miles of active bald eagle nest sites that exceed ambient noise or disturbance levels would be restricted between August 15 and January 1 (i.e., the open construction window). In addition, the letter states that concurrence is based on the fact that "the project will not remove suitable habitat for listed terrestrial species", which includes bald eagles. Therefore, the proposed project is expected to avoid construction and operation activities within 0.25 miles of the California Creek nest territory between January 1 and August 15, and would not remove potential perch trees from the forested stand adjacent to Bertrand Creek (USFWS 2002).

GSX-Canada

No mitigation measures specific to bald eagles were included in GSX-Canada's environmental assessment. However, the document contained a number of general measures designed to minimize habitat disruption. The pipeline route was selected to avoid bisecting unfragmented forest interiors, to traverse agricultural land and existing clearings, as well as to follow existing rights-of-way and previous disturbances where practical. Where feasible, nests, dens, and breeding sites (e.g., nesting trees) for species of concern identified during the wildlife inventory and effect assessment prior to construction would be avoided by either realigning the pipeline right-of-way or by fencing an exclusion area during construction. Pre-clearing would be conducted in advance of peak timing for breeding migratory bird nesting (April 1 to July 31) if other critical scheduling elements permit. Where a conflict occurs between engineering requirements and confirmed sites, regional biologists would be consulted regarding the possibility of moving or reestablishing the site or appropriate compensation for the loss of the site (e.g., nest boxes for certain species). In the event that a listed species or species of concern is discovered during construction, the particular circumstance will be evaluated in consultation with provincial and federal resource agencies to determine the most appropriate course of action (GSX-Canada, Volume 4, Section 7, pg. 89. April 2001).

Terasen Gas Alternative

No information on potential impacts to bald eagles of the Terasen Gas Alternative is available.

No Action Alternative

No information on potential impacts to bald eagles of the NorskeCanada proposal is available.

Significant Unavoidable Adverse Impacts

If GSX-US adheres to the mitigation measures listed above, no significant unavoidable adverse impacts to breeding, roosting or foraging bald eagles would be expected.

3.5.10 Issue [23: Forest Fragmentation](#)⁹

Issue Summary

Description of Problem

Assumptions regarding temporary forest habitat impacts are incorrect and forest fragmentation effects on wildlife are not quantified. On page 3-57 of the Final EIS, no discussion is provided of how many forested stands crossed by the pipeline are of significant size and thus could potentially have interior forest habitat. Data are presented in Appendix K of the Final EIS. However, that appendix does not specify the size of the forested stands. Many of them are simply listed as ">5" acres in size.

Ecology Requirement

Include data, a map, and discussion on what forested stands of significant size (if any) are fragmented in the environmental analysis.

Affected Environment

GSX-US

Based on a review of the most recent project maps, as well as aerial photographs of the project alignment and project vicinity, two large and relatively contiguous forested stands were identified that would be fragmented by the proposed pipeline right-of-way. These two stands are located between MP 23.5 and Interstate 5 and are shown in Figure 3-4. There is another stretch of forested habitat between MP 22.4 and MP 23.5. However, this forested area is significantly fragmented by rural residential homes, clearcuts, and roads. The two impacted stands are a combination of upland and wetland mixed deciduous/conifer forests. Page 3-57 of the FERC Final EIS states that the “loss of forest habitat and the creation of open early successional and induced edge habitats in these woodlots could decrease the quality of habitat for forest interior species for distances up to 300 feet from the right-of-way”. Accordingly, 300 feet was used as the threshold between edge and interior forest habitat. Based on this criterion, the two stands shown in Figure 3-4 currently have approximately 100 and 43 acres, respectively, of interior forest habitat.

GSX-Canada

In the first 8 miles from landfall of the onshore corridor, the majority of forests have regenerated after turn-of-the-century logging. The coastal variety of Douglas fir is the most common species in upland forests with western red cedar, grand fir, arbutus, Garry oak, and red alder frequently associated. Less common trees include shore pine, Sitka spruce, western hemlock, bitter cherry, western flowering dogwood, bigleaf maple, black cottonwood, and trembling aspen.

In the remaining 7 miles of the onshore corridor, characteristic features are the prominence of western hemlock along with a substantial component of Douglas fir along and western red cedar. Grand fir, western white pine and bigleaf maple occur in warmer and drier, southern parts of the area. Red alder is widespread on logged or otherwise disturbed sites. Sitka spruce is also common in the south part of the area, particularly on specialized habits such as floodplains and exposed beaches (GSX-Canada, Volume 4, Section 5, pg. 20. April 2001).

Figure 3-4 Forest Stands Subject to Fragmentation

Impacts

GSX-US

The proposed pipeline right-of-way would convert from 6 to 15 acres of the two forested stands. This fragmentation would be located in lower end of the larger stand, which minimizes overall impacts to the stand. The second stand is largely bisected by the proposed right-of-way, which will effectively eliminate interior forest habitat in that stand. However, this stand has experienced logging in the last ten years (based on aerial photographs), which has thinned a portion of the center of the stand and reducing the quality of interior habitat.

GSX-Canada

The clearing of pipeline right-of-way may alter the interiors of some forested communities through the introduction of an edge effect. The edge effect represents changes in vegetation that extend beyond the boundary of a forest ecosystem following the clearing of adjacent forest habitat and subsequent changes to the forest environment. Wind velocity is generally higher at forest edges, increasing the potential for tree damage caused by windthrow at or near the edge. In addition, edges have the potential to serve as corridors for the invasion of exotic species into previously unaffected areas (GSX-Canada, Volume 4, Section 7, pg. 77. April 2001).

Terasen Gas Alternative

No specific information on affected forested areas is available for the Terasen Gas Alternative.

No Action Alternative

No specific information on affected forested areas is available for the NorskeCanada proposal.

Mitigation Measures

GSX-US

The current proposed alignment in this area minimized fragmentation impacts to the larger of the two forested stands. The Applicant has already made significant efforts to follow existing utility alignments. No further mitigation measures are recommended to offset forest fragmentation impacts.

GSX-Canada

Avoidance of significant communities such as old growth forests was an integral component in the routing strategy. Unfortunately, other routing criteria prevent complete avoidance. GSX-Canada efforts to minimize the direct loss of natural vegetation have reduced the overall magnitude by avoiding 4.3 acres of rare plant association, 1.8 acres of valued vegetation types and 9.6 acres of older forest habitat through route selection and refinement. In addition, numerous specimen trees were specifically avoided and the length of new edge reduced.

Few options are available to minimize edge effects. However, GSX-Canada has attempted, where feasible, to align the route on existing, or soon to be (i.e., prior to construction), cleared lands (approximately 2.4 miles), through revegetating cutblocks (approximately 0.4 miles) and along edges (approximately 2.8 miles) resulting in approximately 5.7 miles or 59% of the total terrestrial length crossing or following existing clearings. While routing along edges has some negative effect in that it shifts the edge effect deeper into forest habitats, it avoids bisection of habitat fragments, thereby retaining some of the fragments' interior forest characteristics.

Terasen Gas Alternative

No specific information on affected forested areas is available for the Terasen Gas Alternative.

No Action Alternative

No specific information on affected forested areas is available for the NorskeCanada proposal.

Significant Unavoidable Adverse Impacts

With the use of the proposed route and construction right-of-way, significant adverse impacts would not be expected.

3.5.11 Issue [24: Marine Mammal Noise Citations](#)¹⁰

Issue Summary

Description of Problem

Richardson et al. (1995) is cited repeatedly in the Final EIS as the source of information concerning marine mammals and their relationship to underwater noise. This citation is not in the list of literature cited. This is a significant oversight since almost all of the conclusions regarding the potential effects of noise produced by the offshore portion of the pipeline are based on this citation.

Ecology Requirement

Provide complete references for all citations in the environmental review.

Affected Environment

Add the following citation to the Literature Cited section:

Richardson, W.J., C.R. Greene, Jr., C.I. Malme and D.H. Thomson. 1995. Marine Mammals and Noise. Academic Press, San Diego, CA. 576 pp.

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.4 GROUNDWATER

3.4.1 Applicable Sections in FERC Documents

Please refer to Section 3.3.1 in the FERC Final EIS and Resource Report 2, Water Use and Quality, in Exhibit F-1 of GSX-US's original application to FERC.

3.4.2 Issue 14: [Water Supply Well Locations](#)

Issue Summary

Description of Problem

The Final EIS does not provide a map of well locations. The public should be advised through the environmental review process of wells that may be affected rather than waiting until permits have been issued and construction has commenced. In addition, it is likely that many landowners will be unable to verify details of their well's construction, depth, or yield.

Ecology Requirement

Evaluate and document in the environmental review the locations of private wells within 200 feet and municipal wells within 400 feet of the project.

Affected Environment

Resource Report 2 provides a map of groundwater well locations on page 2-5.

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.3 SURFACE WATER

3.3.1 Applicable Sections in FERC Documents

Please refer to Section 3.1 in the FERC Final EIS and Resource Report 2, Water Use and Quality, in Exhibit F-1 of GSX-US's original application to FERC.

3.3.2 Issue 6: Impaired Waterbodies

Issue Summary

Description of Problem

The discussion of existing conditions for surface water quality in the Final EIS is three sentences, while the marine water quality discussion is almost two pages. The existing condition of surface waterbodies is at least as important as marine waters. At a minimum, the nine waterbodies listed as impaired under 303(d) should be identified along with their problems.

Ecology Requirement

Include an expanded discussion of existing surface water conditions to allow a reasonable assessment of potential impacts in the environmental review.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

FERC's Resource Report 2, Water Use and Quality, indicates the GSX project will cross nine waterbodies that are considered impaired under Section 303(d) of the Clean Water Act: Sumas River, Johnson Creek, Squaw Creek, Fishtrap Creek, Bender Creek, Bertrand Creek, South Fork Dakota Creek, tributary to South Fork Dakota Creek at MP 22.17, and California Creek. This report was based on a 1998 list from Ecology's Web site. In 2002, however, Ecology developed a map of the 303(d) reaches for each affected stream in Water Resource Inventory Area (WRIA) 1; this map is available at <http://www.ecy.wa.gov/services/gis/maps/wria/303d/w1a-303d.pdf>. When the GSX project pipeline route is overlaid on this map, it appears only six 303(d) stream reaches will be encountered, as listed in Table 3-1.

The GSX project route would cross the Sumas River and Bertrand Creek at considerable distances upstream from the contaminated section shown on the WRIA 1 map, and between two contaminated reaches of the South Fork Dakota Creek. Two streams (tributary to South Fork Dakota Creek at MP 22.17 and California Creek) that were reported in Resource Report 2 to contain contaminated sediments apparently do not. However, the WRIA 1 map shows that two

streams (tributary to Johnson Creek at MP 5.5 and Double Ditch Creek) that were not included in the FERC Resource Report contain contaminated sediments at the GSX project crossings.

Of the six waterbodies listed above, three (Johnson Creek, Fishtrap Creek, and Double Ditch Creek) will be crossed using HDD or conventional bore trenchless techniques, thereby avoiding possible resuspension of contaminated sediments. Three streams will be crossed using open-cut methods: a tributary to Johnson Creek at MP 5.5, Squaw Creek, and Bender Creek. GSX-US proposes to cross the tributary to Johnson Creek at MP 5.5 with the open cut, wet ditch technique and Squaw and Bender creeks with the open-cut, flume technique. There is a potential for limited sediment resuspension by the open cut techniques, but because all three streams at these crossings are channelized, the amount of pre-construction sediment deposition would be low. In addition, the flume crossing technique will affect a very short reach of stream. The sandbag dams across the stream at each end of the flume will retain turbidity between the dams until the dams are removed. GSX-US proposes to further minimize the amount of resuspended sediment by installing clean gravel in the upper 1 foot of trench backfill in the streambed and by placing erosion-control fabric on the reconstructed streambanks.

If the trenchless crossing technique fails at any of the streams at which it is proposed, the streams would have to be crossed with open-cut techniques. In that case, the potential for sediment resuspension would be similar to that for the streams discussed above.

Table 3-1 summarizes the information regarding the 303(d) impairment for the six crossings.

Table 3-1: 303(d) Stream Crossings

Milepost	Waterbody	303(d) Listing Stream Reach and Impairment	Crossing Method
5.50	Tributary to Johnson Creek (Clearbrook Creek)	CT99ZQ Fecal coliform, dissolved O ₂	open-cut, wet ditch
6.19	Johnson Creek	PL 43AX Fecal coliform, dissolved O ₂	horizontal directional drill
8.24	Squaw Creek	GF74PM Fecal coliform	open-cut, flume
11.32	Fishtrap Creek	RN53NC Fecal coliform	conventional bore
11.86	Bender Creek	UI16IQ Fecal coliform	open-cut, flume
13.39	Double Ditch Creek	LN43IE Fecal coliform, ammonia-N	conventional bore

Source: Ecology 2003.

Terasen Gas Alternative

There is no assessment of potential stream crossings for the Terasen Gas Alternative.

No Action Alternative

There is no assessment of potential stream crossings for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

Assuming specialized construction techniques are used and Ecology's recommended mitigation measures are incorporated, significant adverse impacts are unlikely.

3.3.3 Issue [7: Dewatering Impacts](#)

Issue Summary

Description of Problem

The discussion of construction impacts in the Final EIS does not include dewatering, or water drainage, impacts. Dewatering operations could affect both surface water quantity and quality. For example, the conventional boring method for stream crossings will likely have to be accompanied by significant dewatering of the surrounding aquifer. The large pumping rates could present problems for controlling discharge water and dewatering, or severely reducing stream flow at that location and downstream.

Ecology Requirement

Include a more thorough analysis and discussion of the potential effects of dewatering activities on surface water and groundwater in the environmental review, including impacts on stream flows.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

Water would be pumped out of the trench and discharged to the ground in a manner that does not cause erosion or allow unfiltered flow into wetlands, streams, or lakes. To achieve this, water pumped out of the trench would be discharged to a well-vegetated upland site through a temporary dewatering structure such as hay bales or a filter bag. Water would not be pumped directly to surface waters. Dewatering would never exceed 10% of the receiving water volume (Williams Pipeline Company 2003).

Terasen Gas Alternative

There is no assessment of potential dewatering impacts for the Terasen Gas Alternative.

No Action Alternative

There is no assessment of potential dewatering impacts for the NorskeCanada proposal.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

There is no assessment of potential dewatering impacts for the Terasen Gas Alternative.

No Action Alternative

There is no assessment of potential dewatering impacts for the NorskeCanada proposal.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.3.4 Issue [8: Open-Cut Alternative](#)

Issue Summary

Description of Problem

Recommendations regarding the open cut method as a crossing alternative are not discussed in the contingency plan.

Ecology Requirement

If the proposed action alternative is approved, there will be substantial pressure from GSX-US to quickly approve the decision for the open-cut method. Have the contingency plan in place before construction begins, and describe it in the environmental review.

Affected Environment

GSX-US prepared "Request No. P1," dated May 7, 2003, which eliminates the option for an open cut at Cherry Point. The request cites reports by two geotechnical engineering companies and bids from five drilling firms, which conclude the HDD method has a probability of success of almost 100%. GSX-US states that the contingency or alternative to the proposed HDD method is additional attempts at the HDD. The Applicant also acknowledges that in a May 22, 2003, meeting with representatives from Ecology, Whatcom County, and the Corps, it was formalized that an open cut, even if proposed, was not permissible.

The issues relating to an open-cut method are substantial, and include impacts on hydrology, vegetation, geology, wildlife, intertidal habitat (including local herring habitat), beach habitat, and visual impacts. Therefore, an open cut is not considered a viable alternative to the HDD.

Impacts

GSX-US

GSX-US is not requesting approval for an open cut for the marine entry because the HDD method is the one that will be used to install the pipeline near Cherry Point, Washington. Based on its own extensive studies, GSX-US has concluded that the HDD shore approach at Cherry Point is achievable with nearly 100% probability of success and is the primary and preferred method for the GSX pipeline shore crossing.

The contingency or alternative to the proposed HDD is additional attempts at the HDD. In the unlikely event that a first attempt would fail, after an analysis to determine the details of the failure and to make revisions as necessary to mitigate the failure possibilities, a second HDD attempt would be made. If the second attempt were to fail, after additional analysis to determine the details of the second failure and to make additional revisions as necessary to mitigate the failure possibilities, a third attempt would be made. The probability of success of one of the three attempts is almost guaranteed. Additional engineering analysis and HDD attempts would be completed as necessary to install the GSX-US pipeline at the shoreline.

GSX-Canada

Potential marine environmental effects associated with the HDD for the GSX-Canada project primarily relate to the permanent loss or temporary disturbance of eelgrass habitat. The major impact area would be near the HDD exit hole where suspended sediment and bentonite drilling muds could be transported to nearby eelgrass. Sustained high suspended sediment levels could impair ecological function. Concerns were also expressed about potential effects on nearshore

habitat from vessel operation and anchoring. In addition to suspended sediment, concerns were expressed about the potential toxicity of the drilling mud and the viscosifer agent to be used at the HDD exit hole.

If the Vancouver Island shoreline crossing cannot be accomplished using HDD, a partial HDD or full open-cut method would be used. These methods would raise many of the environmental issues the HDD is intended to avoid. The partial HDD and the full open cut would require excavation through the aquatic shoreline area including shallow subtidal and intertidal zones.

For a full open cut, forest cover on the slope would be cleared from the right-of-way (ROW) and a dragline or equivalent excavator would be used to dig the trench. Without intensive bank stabilization and reclamation effort following full open-cut construction, there could be chronic erosion and increased aquatic shoreline siltation and turbidity. This outcome would result in proportionately more long-term effects on marine vegetation (National Energy Board 2003).

Terasen Gas Alternative

Looping of the existing Terasen Gas pipeline will involve crossing a number of small streams and two major rivers: the Indian River and Squamish River. The two river crossings will be accomplished with directional drilling, the technique used to install the current pipeline in 1989. Potential impacts associated with these crossings are expected to be similar to those for the GSX-US and GSX-Canada projects. However, the Terasen Gas proposal does not call for the crossing of any marine shoreline (Terasen Gas 2003).

No Action Alternative

The NorskeCanada proposal does not call for pipeline construction.

Mitigation Measures

GSX-US

Because a partial or full open cut is not proposed at Cherry Point, a contingency mitigation plan has not been proposed.

GSX-Canada

In the event of a failed HDD, the Joint Review Panel accepted the reclamation and restoration measures outlined in GSX-Canada's contingency plan for a partial HDD or open cut. However, to ensure potential effects are managed during construction, the panel recommended that GSX-Canada not proceed with the partial HDD or open-cut method without developing a detailed site-specific crossing plan and an eelgrass monitoring plan that receives approval from the National Energy Board. The panel concluded that, with the implementation of GSX-Canada's proposed mitigation measures and the panel's recommendation, significant adverse environmental effects of a partial HDD or open cut would be unlikely (National Energy Board 2003).

Terasen Gas Alternative

Terasen Gas's existing pipeline corridor was chosen in 1989 on the basis of geotechnical, environmental, land use, and property ownership considerations consistent with current route selection techniques. Geotechnical considerations were particularly important in the selection of the original route. These considerations included topography, surficial geology, surface and subsurface drainage, and slope stability. The selection of the best route from a geotechnical standpoint was important to minimize erosion and sedimentation problems. The original crossing of the Squamish River, considered to be the most environmentally sensitive crossing, successfully used the directional drilling technique. The results of Terasen Gas's original studies and construction techniques would be applied to the proposed pipeline loops.

No Action Alternative

The NorskeCanada proposal does not call for pipeline construction.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.3.5 Issue [9: Wet Ditch/Dry Ditch Methods](#)⁴

Issue Summary

Description of Problem

The Final EIS does not elaborate on or evaluate criteria for wet ditch versus dry ditch excavation. Rather, it indicates that this would occur at some future time "prior to construction." High flow volumes are identified as one of the conditions where wet ditch excavation may be required. These are also the conditions that would have the highest potential for water quality impacts. Criteria for decisions and the potential impacts of these decisions need to be addressed in more detail and cross-referenced to the evaluation of fisheries impacts.

Ecology Requirement

Discuss the criteria to be used for selecting the wet ditch method in the environmental review and expand discussion of the impacts of that approach.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

The wet ditch method or “open cut, flowing” technique installs the pipe while stream flow is maintained in the channel. Prior to trench excavation in the waterbody, the pipe string is fabricated in an upland area and all materials are staged. A temporary bridge is installed to allow workers and equipment to cross the channel. Erosion-control measures are installed to prevent siltation of the stream from soil stockpiles and construction activities outside the streambank.

Excavation is accomplished using conventional hydraulic excavation equipment. The trench is excavated on both sides of the stream, leaving “plugs” or hard soil in place to prevent the stream from entering the excavation. At this point, instream excavation begins, using one or two pieces of excavating equipment depending on the width of the stream; excavation in very narrow streams will be completed using one trackhoe. Excavated spoils will be stockpiled at least 10 feet from the stream and protected with erosion-control devices to prevent silt-laden water from entering the stream. Pipe is then placed into the trench and backfilling begins. Backfilling begins in the center of the trench and moves outward to the banks. This method forces silt-laden water to the ditch outside the stream channel; however, some silting of the stream will naturally occur (Williams Pipeline Company 2003).

GSX-US will use native materials to backfill instream ditches. Clean, washed gravel will overlay disturbed native material in fish-bearing and 303(d)-listed streams.

Terasen Gas Alternative

There is no assessment of potential crossing methods for the Terasen Gas Alternative.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

Ecology has recommended the use of clean gravel in the upper 12 inches of backfill to stabilize the trench and reduce sedimentation. This recommendation has been incorporated into the Wetland and Riparian Restoration Plan for fish-bearing and 303(d)-listed streams.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

Assuming proposed construction techniques are used and Ecology's recommended mitigation measures are incorporated, significant adverse impacts are unlikely.

3.3.6 Issue [10: Equipment Impacts in Waterbodies](#)⁵

Issue Summary

Description of Problem

The Final EIS does not adequately discuss the potentially significant adverse impacts of operating or driving clearing equipment through perennial waterbodies. Modern technology for temporary bridges makes driving equipment through waterbodies almost completely unnecessary. A recommendation to avoid is not sufficient to protect water quality or fisheries resources.

Ecology Requirement

Where no bridge exists, construction of a bridge would result in vegetation clearing at a minimum and could result in in-water work. Impacts associated with these crossings need to be identified and mitigation proposed for those impacts.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

FERC Environmental Condition No. 14 prohibits equipment crossing through perennial waterbodies unless otherwise approved by FERC in the Implementation Plan. GSX-US will not propose equipment crossing (fording) through perennial streams. GSX-US has revised its Wetland and Waterbody Crossing Procedures to state that clearing crews shall avoid fording perennial streams. All stream crossings will use portable bridges, which are narrow enough to allow bridge installation from one side without fording the stream. No in-water work will be necessary for portable bridge installation. Impacts on riparian areas and proposed mitigation are presented the draft Wetland and Riparian Restoration Plan (GSX-US 2003).

Terasen Gas Alternative

There is no assessment of operating or driving clearing equipment through perennial waterbodies for the Terasen Gas Alternative.

No Action Alternative

The NorskeCanada proposal does not involve pipeline construction.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.3.7 Issue [11: Open-Cut Crossing Impacts](#)⁶

Issue Summary

Description of Problem

The Final EIS does not provide justification for why open cut crossings of 303(d)-impaired waterbodies would not have an adverse effect. Discussion states that, “we do not believe that using the open-cut crossing methods would increase the water bodies’ impairment,” but no justification is provided for this statement.

Ecology Requirement

Provide supporting documentation for the conclusion that open-cut crossings would have no adverse impacts in the environmental review.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

The GSX project crosses six waterbodies that are listed on the 303(d) as impaired (see Table 3.3-1). Of the six waterbodies listed, three would be crossed using HDD or conventional bore trenchless techniques to avoid possible resuspension of contaminated sediments. The other three streams would be crossed by open-cut methods. GSX-US proposes to cross the tributary to Johnson Creek at MP 5.5 with the open cut, wet ditch technique, and Squaw and Bender creeks with the open-cut, flume technique, which is described in detail below.

The decision to install the pipe using the open-cut method would only be made after all other reasonable alternatives have been exhausted. For these waterbodies, the probability of success for installing pipe with an HDD or conventional bore is very high. GSX-US is requesting approval to install using the open cut method only as a contingency plan with a very low likelihood of its use.

There is not a hard and fast rule for the number of times an HDD or conventional bore is attempted before the decision is made to use the open cut method. Factors that may be considered in this decision are the specific cause of the failure and the soil conditions encountered.

For example, the corrective measure may involve a determination that the existing hole encountered a void, which could be bypassed with a slight change in the profile. In other cases, it may be determined that the existing hole encountered a zone of unsatisfactory soil material and the hole may have to be abandoned. In this case, it may be possible to use an alternate adjacent alignment contained in the right-of-way to drill a new hole.

The open-cut, flume technique involves diverting stream flow into a carefully positioned steel pipe of suitable diameter to convey the entire flow of the stream.

Instream construction activities are generally limited to:

- Polyethylene sheeting at flume pipe inlet and outlet points;
- Diversion structures/flume support consisting of sandbags; and
- Baffle structures to dissipate flow energy at the flume pipe outlet.

The installation method begins with one diversion structure being placed at the upstream end of the flume pipe to guide all of the stream flow into the pipe and a similar downstream dam placed to prevent water from backflowing into the “dry” section. Once stream flow is being conveyed through the flume pipe, activities for installing the pipeline begin.

Conventional pipeline trench installation is accomplished using hydraulic excavation equipment beneath the flume pipe. This technique allows turbidity associated with trenching to be kept between the dams with no interruption to the downstream flow and volume of the stream. Excavated material is moved away from the crossing and stored for subsequent backfilling. Some

seepage of water into the area between the dams occurs from subsurface flow and/or some leakage around and under the temporary dams. This is pumped out as needed into an upland dewatering structure for retention until the sediment settles out and/or the water percolates into the ground. The flume pipe and dams are removed after the pipeline has been installed.

Before the flume pipe is installed in the stream, it would be inspected to ensure it is free of grease, oil, or other pollutants. In addition, excessive dirt would be removed from the flume pipe. The pipe would be steam-cleaned, if necessary, to remove any oil or grease present on the pipe before placement in the stream.

Short-term, elevated levels of turbidity are expected to occur during installation of the flume pipe. However, several measures would be taken to minimize the increased turbidity. Both the inlet and the outlet of the flume pipe would be lined with sandbags and plastic to create a proper seal. The reason for sandbagging the downstream end of the flume is to create a contained area where turbid water is trapped and to prevent downstream water from flowing up the streambed and flooding the trench. Sandbags would be filled with a non-leachable material such as clean, pre-washed sand. Sandbags would be tied securely before they are installed. Sheets of plastic would be interwoven between the layers of sandbags to ensure an effective seal.

Before the flume pipe is installed, at least three rows of sandbags (the dam foundation) would be laid to support the upstream and downstream portions of the flume pipe. All instream work would be carried out on foot and no equipment would operate in the streambed. After the dam foundation is in place, the flume pipe would be lifted over the stream and carefully aligned before it is lowered onto the sandbags. The flume pipe would not be pushed or pulled over the banks and into the water. After the flume is laid on the sandbags, construction on the upstream dam would immediately begin, followed by installation of the downstream dam.

Prior to trenching, any fish in the work area would be removed and released downstream. Removal would be done with seines and fine-mesh dip nets. Two trackhoes would begin trenching from each streambank at the same time and the pipe would be installed as soon as the trenching is complete. Excavated spoils would be stored at least 10 feet away from the stream along the trench and protected with erosion-control devices. The volume of work area that needs to be dewatered is much less for flume crossings than for bore crossings. Groundwater and some seepage of surface water around the dams may enter the trench area and become turbid as the trench is being excavated. The turbid water would be pumped out of the trench area so that it would not accumulate and flow around the downstream dam into the live stream.

The highest potential for causing water quality problems during a flumed crossing is during backfilling of the ditch. If the ditch is backfilled too quickly, the water level in the construction area may overflow or leak over the downstream dam. Pumps must be carefully used during backfilling to control the water level in the construction area, and backfilling must be conducted in a slow, well-planned manner.

Backfilling begins in the center of the stream directly under the flume pipes and proceeds toward each bank simultaneously. In this manner, much of the water in the ditch would be pushed to the ditch outside the stream channel. When complete, the streambed would be compacted and trench

plugs would be installed on both sides of the stream. The instream work area would be fully stabilized prior to removing the flume.

To prevent excessive increases in turbidity during flume removal, the sandbags must also be removed in a controlled, well-planned manner. Sandbags would be removed from the downstream dam first, followed by the upstream dam at a rate dependent on the size and flow of the stream. There would be an initial increase in turbidity downstream of the crossing. However, the water would quickly flow clear again over the construction area. The flume pipe would be lifted out of the crossing area, and the remaining sandbags would be removed by hand.

Additional measures taken to minimize impacts near the stream crossing include using a crew whose sole responsibility is maintenance of the flume. They would have supplies on hand enabling them to apply additional plastic and sandbags to the dams, maintain and operate the pumps, and maintain the discharge structures. When the crossing is complete, the crew's task would be to immediately install erosion-control structures. Pumps and backup pumps would be located in a spill containment structure designed to fully contain any spills of fuel or oil. Backup pumps would be located onsite, hooked up and maintained as fully operational during the entire crossing process. All water would be discharged through dewatering structures, which are essential in preventing the flow of turbid water overland and back into the stream. Runoff-control structures would be used to prevent runoff from the spoil piles or drainage from the trackhoe bucket from flowing around the sandbag/plastic dams and adding sediment to the stream.

Some of the advantages of a flume crossing include:

- Size of excavation;
- Spoil storage area requirements;
- Minimal dewatering;
- Decreased construction time in vicinity of stream;
- Stream flow is maintained;
- Fish passage is maintained;
- Dry/no-flow work conditions in streambed; and
- Cumulative effects of activities in project area are minimized (i.e., no need for extra work space, continuous truck transport of spoil).

There are potential disadvantages associated with a flume crossing. However, GSX-US has developed procedures to control each of the following potential disadvantages:

- Potential for short-term increase in turbidity during dam construction and removal;
- Potential for limited streambed disturbance;
- Potential for leaking dams leading to increase in dewatering requirements (Williams Pipeline Company 2003).

Terasen Gas Alternative

There is no assessment of impaired streams for the Terasen Gas Alternative.

No Action Alternative

The NorskeCanada proposal does not involve pipeline construction.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.3.8 Issue [12: Hydrostatic Water Test Discharge](#)⁷

Issue Summary

Description of Problem

The Final EIS concludes that continued erosion of the (hydrostatic testing) discharge area could occur if it is not properly stabilized after the discharges have been completed. The Final EIS further acknowledges that this is a potentially significant impact, but fails to evaluate the implications of this potential impact or offer any mitigation.

Furthermore, it is unclear how the water will be transferred to the site since it is not all downhill. Almost 99% of the hydrostatic test water (1.58 M gallons) will be discharged onshore at the GSX-US property south of the Cherry Point compressor station. There is no discussion of whether this site will be able to absorb that much discharge without erosion, water quality degradation, or other impacts.

Ecology Requirement

In the environmental review: (1) evaluate potential effects of erosion and mitigation measures and (2) include an expanded discussion of hydrostatic test water discharge to include identification of discharge sites and the area available for groundwater recharge or surface water discharge.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

Hydrostatic test water would be discharged through an approved dewatering structure and energy dissipating device in a manner to minimize disturbance to the environment. Water would be discharged from the pipeline so as not to cause erosion to the ground surface or unfiltered flow into wetlands, streams, or lakes. GSX-US would require samples to be taken of the test water prior to filling or dewatering the pipeline. Water discharge rates would be approximately 500 gallons per minute (gpm).

Two hydrostatic test water discharge sites are identified: the existing Sumas compressor station and the proposed Cherry Point compressor station.

Existing Sumas Compressor Station

The amount of water required for hydrotesting is minimal at this location and is only to be used for fabricated assemblies associated with the interconnects. Hydrostatic test water would be transferred to the test sections through the use of a hose connected to an existing hydrant located at the Sumas compressor station. All hydrostatic test water would be discharged through an approved dewatering structure located upland from an existing stormwater retention pond at the Sumas compressor station.

Proposed Cherry Point Compressor Station

This location is the main source of water for hydrotesting the onshore portion of the U.S. pipeline. Hydrostatic test water would be transferred to the test sections through the use of a hose connected to a hydrant located at the Cherry Point compressor station. All hydrostatic test water would be discharged through an approved dewatering structure located on the south side of the compressor station in a well-vegetated upland area.

The discharge site is a gently sloping, well-vegetated hay meadow that drains to a tributary of Terrell Creek located approximately 250 feet east of the compressor station site. Filtered water leaving the dewatering structure would flow through the well-vegetated upland before entering the tributary of Terrell Creek. Given this distance and the regulation of discharge rate, most of the hydrostatic test water that is discharged would be absorbed by the soils across a wide area. The primary impact would be a temporary flow increase in the tributary. Since no additives are proposed and erosion and sedimentation would be controlled by implementing Best Management Practices (BMPs), no significant impact on water quality is expected.

GSX-US delineated several wetlands west of the proposed discharge location. These wetlands are formed in areas of hill seepage and are at a higher elevation than the discharge site. GSX-US

does not plan on discharging hydrostatic test water directly into these wetlands, and since they are at a higher elevation than the outfall, discharged water would not affect the wetlands.

The effect on stream flow would also be limited by controlling the rate of discharge. The main parameters to consider when discharging hydrostatic test water are the regulation of discharge rate, use of energy dissipation devices, and installation of sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive stream flow.

Discharge rate is usually controlled through the use of equipment (called a “drying pig”) that is placed in the pipeline upstream from the location where water is to be discharged. The purpose of this pig is to move the water from the upstream location to the discharge point. The pig is moved through the pipeline using compressed air at the upstream location. The rate at which water is discharged can be controlled by adjusting the flow of air into the pipeline and thus increase or reduce the rate at which the pig moves through the line. The discharge rate can also be controlled at the dewatering point by opening or closing a valve. When a pump is used in the dewatering process, its speed can be adjusted to control the discharge rate.

Typically, hydrostatic test water is discharged at a rate of 500 gpm based on the maximum capacity of a 4-inch pump. If site-specific conditions allow, GSX-US may use a larger pump (6 inches) that can discharge water at a rate of up to 1,000 gpm. As a point of reference, 500 gpm is equivalent to about 1 cubic foot per second. In light of the dissipation and buffering effects described above, discharge rates of this magnitude would be expected to have only a minimal effect on stream flow.

However, as explained above, the discharge rate can be regulated. Based on an evaluation of onsite conditions (e.g., discharge water is ponding, causing erosion outside the dewatering structure, contributing to streambed scour or suspension of sediments), the discharge rate can immediately be reduced to deal with these scenarios. In addition, the dewatering structure can be moved to an alternate location if it is determined that the water is not being sufficiently absorbed by the surrounding area. The Environmental Inspector would continually monitor the discharge to ensure that flow rates are not excessive and there are no erosion/scour problems.

Discharge of hydrostatic test water into the tributary to Terrell Creek would be regulated such that flow augmentation would not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the waterbody, result in damage to the ecosystem, or adversely affect public health.

Discharged water would be directed into a dewatering structure constructed with silt fences and straw bales. The purpose of the structure is to dissipate energy, prevent erosion, and filter the test water. This type of structure has been approved for use by Washington State and federal agencies on previous projects (Williams Pipeline Company 2003).

Terasen Gas Alternative

There is no information on hydrostatic testing for the Terasen Gas Alternative.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.3.9 Issue [13: Cherry Point HDD Plan](#)⁸

Issue Summary

Description of Problem

The Final EIS does not include a discussion of a site-specific plan for the HDD at Cherry Point. Mitigation measures are not adequately addressed/not previously disclosed. Proximity to a sensitive area (aquatic reserve) makes this a significant issue.

Ecology Requirement

Given the sensitive nature of the Cherry Point shoreline, include the site-specific plan for the HDD at this location in the environmental review.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

The HDD at Cherry Point involves two areas of disturbance, one onshore drill entry hole and one offshore drill exit hole. The drill entry workspace is located in a hayfield approximately 1,000 feet away from the bluff at Cherry Point. No ground disturbance is anticipated between the entry hole workspace and the exit hole. The entry point workspace would occupy an area of about 7.7 acres. Use of the area would be temporary and the site would be returned to a hay meadow upon completion of the project.

The exit hole of the HDD is located about 2,200 feet away from the nearest area of marine vegetation. At Gulf Road, GSX-US proposes several measures as described on pages 3-70 and 3-72 of the Final EIS. Further protections are provided by implementation of two biological windows established by Washington Department of Fish and Wildlife (WDFW), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) that further restrict the timing of HDD activities (refer to page 3-70 of the Final EIS). The Corps has indicated adherence to these timing restrictions is a condition of Clean Water Act authorization.

The purpose of the exit hole is to capture the drilling mud and to provide a surface that conforms to the seabed so that the pipeline does not incur overstress at the exit point. Excavation of the exit hole would result in about 1,946 cubic yards of sediment disturbance. Suspended sediments would settle back to the seafloor within a few hours of excavation. The dimensions of the exit hole would be approximately 172 feet long and 3 to 16 feet deep. Given the nature of current patterns in the area, the Final EIS concluded there is little probability that sediment would travel upslope (toward the shore) and affect macrophytes in the shallow water area.

A total of 62.1 acres of wetland would be affected by construction of the project. Of this total, 0.76 acre of palustrine emergent wetland is located within the entry hole workspace. This emergent wetland would be temporarily affected by construction, but would be restored to pre-construction conditions.

Impacts from the HDD at Cherry Point would be localized (entry and exit workspace only), temporary (e.g., limited to the duration of construction; recolonization by benthic organisms would occur within one to two years), and would not result in significant impact. However, the Final EIS acknowledges that an inadvertent release of drilling mud could affect marine vegetation if the release occurred within the bands of marine vegetation. Geotechnical studies conducted by GSX-US demonstrated that the overlying sediments are such that a release to the seafloor is considered unlikely. FERC requires GSX-US to conduct a post-construction survey to quantify any impact of drilling mud on marine vegetation and consult with WDNR, WDFW, NMFS and other applicable agencies to develop suitable mitigation for observed impacts.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.2 GEOLOGY AND SOILS

3.2.1 Applicable Sections in FERC Documents

Please refer to Section 3.1 in the FERC Final EIS and Resource Report 6, Geological Resources, in Exhibit F-1 of GSX-US's original application to FERC.

3.2.2 Issue [4: Active Earthquake Faults](#)

Issue Summary

Description of Problem

The Final EIS states that the U.S. onshore pipeline route does not cross any potentially active faults. Easterbrook et al. (2000), which is cited in the EIS, documents activity along both the Sumas and Vedder Mountain faults since 1964, which indicates these faults are currently active. The cited reference also delineates the location of these faults more clearly than in Figure 3.1.2-1 of the Final EIS.

Further, the Final EIS states that earthquakes could result in soil liquefaction along certain segments of the route. No mention is made of potential displacements from potentially active faults such as the Sumas and Vedder Mountain faults.

Ecology Requirement

Include an additional figure identifying these potentially active faults in relation to the proposed pipeline route in the environmental review. In pipeline engineering and construction, accommodate the increased potential for fault movements in these areas. Include a discussion of environmental impacts resulting from potential pipeline rupture and mitigation measures.

Affected Environment

Figure 3-1 shows the projected locations of the Vedder and Sumas Mountain faults in relation to the pipeline alignment. The projected Vedder Mountain Fault is approximately 1 mile east of, and parallel to, the proposed pipeline alignment. The projected Sumas Fault crosses the proposed pipeline route somewhere between Milepost 5 and Milepost 8.

Relative to the pipeline route, both seismic acceleration and seismic velocity predictions reach peak values in the eastern reaches of the Gulf Islands. Most of the identified potentially active faults also lie within the Gulf Islands, south of Pender and Saturna islands, between MP 10.4 and MP 27.3. One of the most prominent fault zones in the area occurs within U.S. waters between MP 10.4 and 11.0, and one other possible feature was identified in the southern Strait of Georgia at MP 5.7 (GSX-Canada 2001).

Figure 3-1 Project Area Faults

Impacts

GSX-US

Potential impacts associated with liquefaction would be the same as the GSX-Canada project, described below.

GSX-Canada

The Pacific Northwest, which includes the pipeline route, is an area of high seismic activity. This activity, as manifest by earthquakes, can result in ground vibration, tsunamis, ground upheaval, marine and terrestrial landslides, and soil liquefaction. Liquefaction potential is low to moderate for the terrestrial segment of the proposed route. The areas along the pipeline route that are susceptible to seismic liquefaction coincide with those areas where a high groundwater level will cause buoyant uplift.

Moderate to large earthquakes are known to have resulted in a variety of underwater landslides and coastal liquefaction phenomena. All of these events have potential to increase risk of pipeline rupture, the degree of risk being dependent on the magnitude of the event, the characteristics of the pipeline route, and the pipeline design specifications. In the event of a line break, most gas would bubble to the surface and escape to the atmosphere. Pressure-sensitive shut-off valves on both shores could be remotely or locally operated to isolate the ruptured marine segment. The volume of confined gas would escape to a point where it equalized with external pressure. Some bottom scour could occur near the leak or line break depending on the direction it faced. Temporary, localized disturbance of benthic flora and fauna would occur (GSX-Canada 2001).

Terasen Gas Alternative

No seismic analysis is available for the Terasen Gas Alternative.

No Action Alternative

Impacts of the proposed project would not occur.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

Impacts of the proposed project would not occur.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.2.3 Issue [5: Potential Scour Impacts](#)²

Issue Summary

Description of Problem

Final EIS Section 3.2 does not adequately respond to Ecology's Draft EIS comment requesting the name and location of waterbodies with potential scour impacts.

Ecology Requirement

Discuss locations of waterbodies with potential scour impacts in the environmental review.

Affected Environment

No additional analysis required.

Impacts

GSX-US

Sediments composing the substrate below active stream channels are susceptible to scour during flood conditions. The potential for stream scour depends largely on flood flow characteristics and the grain size of bottom sediments. Stream scour could expose a pipeline that is underneath a stream if scour depths exceed pipe burial depths.

GSX-US used a 100-year flood as the basis for estimating the depth of bottom scour for the streams crossed by the pipeline. Depending on depth of channel and the size of the waterbody, GSX-US placed all of the waterbodies into one of two categories. The first category includes waterbodies where most of the water during a 100-year flood would not be contained within the confines of the immediate channel. The second category includes larger and deeper waterbodies where the water during a 100-year flood would be contained within the confines of the immediate channel with only limited overbank flooding.

For the smaller waterbodies in the first category, the surface area of flooding during a 100-year return flood would generally be over the bank and widespread. In these cases, the velocity of flow would be below the threshold to produce significant bottom scour except for those waterbodies with loose sand and silt channel substrate. For the waterbodies in the first category,

GSX-US conservatively estimates that the depth of scour would be equal to or less than the height of the channel. Estimated scour depths during a 100-year return flood for the waterbodies in the first category generally range from 3 to 5 feet.

A 100-year flood in waterbodies in the second category would generally result in higher water velocities and potentially greater levels of scour. To estimate scour depths for these waterbodies, GSX-US used accepted stream hydrology analytical techniques and an empirical rule relating to scour depth suggested by Terzaghi (1936). This assessment required various drainage basin parameters and stream flow discharge information. The drainage basin parameters, including stream channel gradients, widths, normal depths of flow, and bank heights for streams crossed by the project, were obtained from topographic maps, field observations, and Ecology's Web site (Williams Pipeline Company 2003).

GSX-Canada

The potential impacts associated with stream scour and the methods for assessment would be the same as the GSX-US project.

Terasen Gas Alternative

No analyses of stream scour are available for the Terasen Gas Alternative.

No Action Alternative

Impacts of the proposed project would not occur.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

Impacts of the proposed project would not occur.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.12 NOISE

3.12.1 Applicable Sections in FERC Documents

Please refer to Section 3.12.2 in the FERC Final EIS and Resource Report 9, Air and Noise Quality, in Exhibit F-1 of GSX-US's original application to FERC.

3.12.2 Issue [39: Noise Abatement Measures](#)¹

Issue Summary

Description of Problem

A pipeline noise impact and mitigation plan should be developed and summarized in the SEPA review documentation.

Ecology Requirement

Develop and summarize pipeline noise impact and a mitigation plan in the SEPA review documentation to allow for a full evaluation and public review of impacts and mitigation measures.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

GSX-US

Existing Noise Regulations. FERC requires that the noise attributable to a new compressor station or other pipeline facilities be less than or equal to 55 dBA at the nearby noise sensitive areas (including residences, schools, hospitals, churches, playgrounds, farms, and camping facilities). At the state level, Chapter 173-60 of the Washington Administrative Code (WAC) establishes maximum allowable noise levels. Based on land-use characteristics, areas are categorized as either Class A, B, or C zones, or environmental designations for the purpose of noise abatement. The Cherry Point compressor station and the metering facilities at the Sumas interconnect facility are located in a Class C area; the nearby residences are categorized as Class A areas. Washington noise regulations (WAC 173-60-040) limit the noise levels from a Class C noise source affecting a Class A receiving property to 60 dBA (day) and 50 dBA (night). Nighttime hours are considered to be 10 p.m. to 7 a.m.

No other federal or Washington State regulations related to noise would apply to the proposed GSX-US pipeline. Further, there are no equivalent regulations for noise impacts on fish or

marine mammals. Although there are federal and state laws to prevent the harm and harassment of protected species (e.g., minimum proximity for whale watching), there are no known noise regulations or standards to safeguard the safety and comfort of marine animals.

Previous Noise Studies. Based on modeling data and information gathered from an existing natural gas transmission pipeline in the Strait of Georgia, GSX-US provided reports suggesting that the pipeline would produce low-frequency and low-energy sounds that could be detected near the pipeline (Birch et al. 2000; Glaholt 2000; Potter 2000). The intensity levels of these sounds would normally be less than ambient conditions. Generally, baleen (humpback, gray, and minke) whales that may occasionally move through the area would be the only marine mammals that might be able to detect these low-frequency sounds. Although baleen whales might detect sounds from the pipeline, avoidance behaviors are not known to occur at the low intensity levels that would be generated by the pipeline (Potter 2000; Richardson et al. 1995). Other marine mammals, such as killer whales and harbor porpoises, are thought to be most sensitive to sounds of higher frequency than generally would be emitted from the pipeline. The FERC staff concluded that they do not expect operation of the pipeline to adversely affect marine mammals. However, the FERC EIS did include a recommendation that GSX-US gather data on the sounds emitted from the marine pipeline after it begins operation.

Supplemental Noise Studies. To further assess the issue of noise impacts to marine animals, GSX-US commissioned two additional studies of the noise generated by the marine pipeline that more accurately reflect GSX pipeline features and operating conditions. ~~Two additional studies were conducted for GSX-US to analyze the operation of the Cherry Point compressor station and gas flow through the pipeline. The studies assessed the potential for sounds to be emitted from the walls of the marine pipeline.~~ Those studies are:

- Kitech, Paul D. P.E. February 2003. GSX Canada Pipeline Project: Results of a Supplemental Acoustical Analysis of the Potential Noise of the Underwater Pipeline Associated with the GSX Project. Hoover & Keith, Inc.
- Marko, J. R. February 2003. Consideration of Evidence for Noise Generation by Underwater Gas Pipelines and Presentation of Laboratory Data Relevant to the Acoustic Insulation Properties of Concrete Pipeline Cladding. ASL Environmental Sciences, Inc.

In addition to reviewing and interpreting the data presented previously, the analysis by Marko (2003) included a study of pulsed sound propagation through bare and concrete-coated steel plates and longitudinal pipe sections. This study demonstrated that the concrete coating proposed for the marine pipeline would reduce the intensity of sound moving into the water column. Even assuming sounds of relatively high frequencies and intensities, concrete coating would dampen the sounds to below ambient conditions in even the quietest ocean locations.

The report by Hoover & Keith, Inc. (2003) reviewed the data presented previously and presented modeling data based on actual GSX pipeline features, operating conditions, flow velocities, and sound transmission loss values. The results of the analysis indicate that the estimated noise radiated at approximately 3 feet from the underwater section of the pipeline would be equal to or lower than 30 dB at 16 kHz and above, which is below the minimum hearing threshold for

marine mammals such as toothed whales (e.g., toothed whales have hearing thresholds of 40 dB above 16 kHz).

Since sound from an underwater noise source decays until a surface is encountered, the pipeline noise would be even lower at moderate distances from the pipeline than the estimated level at approximately 3 feet. Consequently, the noise radiated from the underwater pipeline is unlikely to be detectable to most marine mammals even if the marine environment was relatively quiet. In addition, the average ambient noise levels in the ocean for quiet conditions are about 50 to 60 dB at frequencies above 16 kHz. Therefore, ambient noise would typically mask the ability of an animal to detect sounds below 50 dB.

~~The Marko study (2003) presents measurements of pulsed sound propagation through bare and concrete-coated steel plates and longitudinal pipe sections. The results suggest that the planned encasement of the proposed GSX pipeline in 1.6 inches of concrete would reduce the purported pipeline-generated noise to levels below those attainable in the quietest deep ocean locations. Further, these noise levels are well below existing estimates of the minimum orca auditory threshold.~~

~~The Kitech analysis (2003) contained a more realistic flow velocity inside the GSX pipeline and a further interpretation of the existing Centra Gas pipelines. Results indicate that, at a distance greater than 3.28 feet, noise that radiates from the underwater section of the pipeline would be below the minimum hearing threshold for marine mammals. In addition, because underwater sound from a noise source decays until a surface is encountered, pipeline noise would be even lower at moderate distances from the pipeline than the estimated level at 3.28 feet.~~

~~The results of the two studies show that the proposed pipeline would not generate sounds of high enough frequencies and intensities to negatively affect marine life.~~

Conclusions. The decibel scale of noise measurement is logarithmic in nature. For example, 30 dB is not 75% of 40 dB, but 50%. Fifty dB is 400% of 30 dB, and 60 dB is 800% of 30 dB. Therefore, the predicted level of noise from the pipeline would be half of the estimated low threshold of hearing for toothed whales, and one-quarter to one-eighth of the ambient noise level. Further, given two coexisting sounds that are 10 dB apart in sound level, the louder sound will mask the weaker, rendering it inaudible. Therefore, noise from the pipeline would have to be more than 40 dB to be audible, and 60 to 70 dB to mask the ambient noise under calm sea conditions.

In summary, the supplemental noise reports conclude, using established and accepted analytical techniques and credible biological data on marine mammal auditory response, that:

- The minimum predicted background noise in open marine waters is 50 to 60 dB under calm atmospheric and sea conditions.
- The minimum hearing threshold of the toothed whale is about 40 dB.
- The noise level of the pipeline into surrounding water will be about 30 dB.

Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible

to toothed whales (e.g., Orca or harbor porpoise). Based on Ecology's review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot be concluded that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

GSX-Canada

This section summarizes the conclusions regarding marine pipeline noise impacts contained in Volume V - Environmental and Socio-Economic Impact Assessment (ESEIA) of the Georgia Strait Crossing Pipeline Limited Application for Certificate of Public Conveyance and Necessity to the National Energy Board of Canada (April 2001). The proposed project would generate noise as a result of vessel traffic, pipeline trenching, and pipeline operation. Vessel and trenching noise is likely to be similar to routine vessel traffic and dredging-type operations that periodically occur in the Strait of Georgia and Fraser River. No evidence is available to suggest that these noise sources are responsible in a material way for any observed changes in long-term fish abundance or distribution. These observations suggest the noise associated with this pipeline does not deter close association by certain species.

Noise during marine construction would be generated temporarily by the lay barge and trenching barge in addition to support vessels. Small boats associated with the operation are likely to produce sound with source intensity at approximately 3 feet ranging from 145 dB to 170 dB (Richardson et al. 1995). The lay barge and trenching barge may have dominant frequencies with an intensity of 169 dB to 198 dB at approximately 3 feet from the source (Richardson et al. 1995). During the trenching operation, noise would also be generated by trenching equipment on the seabed.

During pipeline operation, some noise would be generated by the proposed pipeline. Data obtained on part of an existing 10-inch epoxy-coated, high-pressure marine natural gas pipeline identified sound in the range of 60-72 dB (Birch et al. 2000). These values were about 10 times lower than the ambient values measured approximately 3,281 feet away, a factor largely attributable to high volumes of vessel traffic in the area at the time of sampling. The ambient noise levels were in the range of 70-80 dB. The proposed GSX-Canada pipeline has a larger diameter than the pipeline tested, and so would tend to have a lower frequency for any given operating pressure than a smaller diameter line. The proposed pipeline was estimated to have a maximum noise intensity in the range of 85+ 10 dB at approximately 3 feet from the source (Potter 2000).

While concern has been raised in regard to the potential for vessel activity and anthropogenic noise to negatively affect marine mammals, there is no indication that current vessel activities and associated noise (similar to that described above) within the southern Strait of Georgia and Strait of Juan de Fuca have negatively affected marine mammals. Toothed whales and some pinnepeds are not highly sensitive to low frequency sounds characteristic of many man-made noises (Richardson et al. 1995). The probable pipeline sounds would fall into this category, and they are within the range of other vessel noise already present in the area. Projected pipeline noise is believed to be below the hearing threshold for toothed whales.

Baleen whales are much more sensitive to low frequency sounds than other marine mammals (Richardson et al. 1995) and would likely have the ability to hear the pipeline during operations (Potter 2000). Among the concerns associated with low frequency sounds and baleen whales is the potential for “masking” low frequency whale communications. At the low frequencies involved, the masking effect of sound energy in decibels necessary to overcome masking effects is less than that for higher frequency potential sound masking sources. Research suggests that the maximum radius of influence of man-made sounds on baleen whales is at the point where the man-made noise diminishes below the ambient level (Richardson et al. 1995). Marine mammals regularly communicate in the range of 160 to 180 dB. Such signals decay by spherical spreading but would not fall below 60 to 80 dB until a distance of approximately 60 miles. At this distance, this sound level would still be 0 to 20 dB above the estimated pipeline noise at 0.6 mile (Potter 2000).

Terasen Gas Alternative

As with the proposed action, operational noise would be associated primarily with the increase in compression horsepower at three new sites and upgrades at other stations. Typical sources of noise at the compressor stations would include the turbine air intake, turbine exhaust, turbine lube oil cooler, turbine machinery surfaces, gas interstage coolers, and gas aftercoolers. Actual impacts would depend on the final location of the station, and its proximity to noise-sensitive areas.

Potential noise impacts resulting from pipeline looping would be associated with pipeline construction and would be similar to the proposed action. Noise emitted from the LNG facility would be minimal and limited to rotating machinery (Terasen Gas 2003).

No Action Alternative

Additional noise generated by the cogeneration facilities is not expected to materially affect the existing noise profile at the NorskeCanada sites. Noise emissions at the facilities would be controlled to a maximum of 85 decibels (dB). At a distance of 46.3 feet from the facility, noise levels would be 50 dB, or equivalent to the ambient level in an office environment (NorskeCanada 2003).

Mitigation Measures

Proposed Action

Because the two noise studies that were reviewed show the proposed pipeline would not generate sounds of high enough frequencies and intensities to negatively affect marine life, no additional mitigation is required.

Terasen Gas Alternative

Measures to minimize noise impacts at the compressor station would be similar to the proposed action and include special silencers on the turbine air intake and exhaust, locating the turbine in

an acoustically treated building, and gas aftercoolers. At the LNG facility, the liquefaction compressor and vaporization pumps would be electric and housed in acoustical structures designed to attenuate noise emissions. Noise levels at all facilities would comply with all applicable federal and provincial regulations.

No Action Alternative

Operation of equipment at all of the NorskeCanada mills is in compliance with ISO 9000 and ISO 14000 registration, and all applicable provincial and federal regulations.

Significant Unavoidable Adverse Impacts

No significant adverse impacts have been identified.

Chapter 4

Responses to Comments

IND-1

Comment 1

The pipeline alignment was established through the FERC process. Therefore, relocation of the project to another landowner would require FERC approval. Negotiations between individuals and the applicant regarding payment for easements or damages are beyond the scope of the Draft SEIS.

IND-2

Comment 1

Comment noted.

IND-3

Comment 1

Please refer to Sections 3.5.6 through 3.5.9 of the Draft SEIS for discussions of how impacts to plants and animals would be mitigated. Section 3.5.10 specifically addresses potential impacts to significant forest stands.

Comment 2

Comment noted.

IND-4

Comment 1

The Terasen Gas Alternative was presented in Section 2.3 of the Draft SEIS. It was included in the Draft SEIS because it is considered by Ecology to be a viable alternative.

Comment 2

See Comment 1.

Comment 3

Comment noted.

Comment 4

The Department of Ecology must certify that the proposed project will comply with the Washington State Coastal Zone Management Program and the requirements of the Federal Coastal Zone Management Act of 1972 (16 U.S.C. 1451).

Comment 5

The Washington State Department of Natural Resources (DNR) is responsible for the management of state-owned aquatic lands, and specifically the aquatic lands affected by the GSX-US pipeline right-of-way. DNR is currently in the process of establishing the Cherry Point area as a state Aquatic Reserve and preparing the Cherry Point Management Plan and accompanying supplemental environmental impact statement. A scoping meeting for the EIS was held on October 22, 2003. A public meeting to review the Draft SEIS will be held, if necessary, on January 15, 2004. The full public hearing on the proposed management plan and Draft SEIS is scheduled for January 26, 2004. More information on the Cherry Point Management Plan is available from Dave Palazzi, DNR Aquatic Reserves Manager, at (360) 902-1069.

Comment 6

Although the specific issue raised in your comment is outside the scope the Draft SEIS established by Ecology, a discussion of geologic and soil conditions at the Cherry Point Landfall can be found in Section 3.1.3 of the FERC Final EIS.

Comment 7

Section 3.12 of the Draft SEIS contains a summary of two additional noise studies conducted by GSX-US since publication of the FERC Final EIS. Complete copies of those studies can be obtained at Ecology's Northwest Regional Office in Bellevue, Washington. Additional noise analyses are contained in Section 3.12.2 of the FERC Final EIS and Resource Report 9 – Air and

Noise Quality. The Resource Report is also available for review at Ecology's Northwest Regional Office.

Comment 8

See Comment 7.

Comment 9

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology's review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

Comment 10

Your inclusion of the letter from the Commissioner of the Connecticut Department of Environmental Protection is noted for the record.

IND-5

Comment 1

You are correct that the stated objective of the project is to provide a transportation system for natural gas to Canadian electrical generation facilities that will meet the growing demand for electrical power on Vancouver Island, Canada.

Comment 2

Your comments regarding the potential benefits of the Terasen Gas alternative are noted. With regard to market demand on Vancouver Island, that question will be addressed through the process recently initiated by BC Hydro in response to the September 8, 2003 ruling of the British Columbia Utilities Commission (BCUC). In its ruling, the BCUC denied the Application for Certificate of Public Convenience and Necessity (CPCN) by the Vancouver Island Energy Corporation (VIEC) for the Vancouver Island Generation Project (VIGP). The VIGP called for construction of a gas-fired generation plant at Duke Point near Nanaimo. The gas for that generation plant would be supplied by the GSX-US pipeline. The denial of the CPCN was the result of the BCUC's inability to conclude that the VIGP proposal was the most cost-effective alternative for BC Hydro customers.

In response to the BCUC ruling, BC Hydro issued a "Call For Tenders" (CFT) on October 31, 2003. Under that process, BC Hydro will accept and evaluate new proposals for energy and generation and supply. An Independent Reviewer will review and evaluate the proposals and recommend a preferred option. At publication of this Final SEIS, 23 bidders had registered. Some bidders are proposing new sources of power, whereas others would likely be interested in assuming control of VIGP's assets and completing a gas-fired plant similar to VIGP. This process is expected to be complete by the end of September 2004. For more information on the CFT process, visit the BC Hydro Website: <https://www.bchydro.com/info/ipp/ipp8467.html>.

Comment 3

In Section 3.7, the Draft SEIS acknowledged the project's location within the Cherry Point Urban Growth Area (UGA) and Whatcom County's designation of these lands for future industrial development.

Comment 4

Comment noted. A comprehensive analysis of cumulative impacts of the GSX-US and BP Cherry Point projects was outside the scope of issues identified by Ecology for the Draft SEIS. However, Section 3.10 of the Draft SEIS (Traffic and Transportation) does address potential cumulative impacts related to vehicle traffic, particularly construction traffic. Cumulative impacts were also addressed in Section 3.14 of the FERC Final EIS.

Comment 5

Comment noted.

Comment 6

Comment noted.

IND-6

Comment 1

The South Fork of Dakota Creek is proposed for HDD. Therefore, disturbance to the stream or riparian zone is not anticipated. Mitigation to prime farmland soils is described in GSX-US's Upland Erosion Control, Revegetation and Maintenance Plan provided in Appendix C of the FERC Final EIS. Mitigation includes restoration of agricultural drainage systems, topsoil segregation, compaction relief, and removal of rocks greater than four inches diameter from surface soils.

Comment 2

Comment noted. The FERC maintains an Enforcement Hotline that can be used by the public to file complaints regarding a regulated natural gas company. The Enforcement Hotline's toll free number is 1-888-889-8030. In addition, the applicant is required to administer and maintain a landowner complaint resolution program during project implementation. All landowner complaints must be reported to FERC along with the resolution or proposal to resolve the complaint.

IND-7

Comment 1

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology’s review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

IND-8

Comment 1

Comment noted.

Comment 2

Literature reviewed by GSX-US in preparation of its application to FERC is cited in Resource Report 3 – Fish, Wildlife and Vegetation, pages 3-45 through 3-51. Appendix 3-1 to Resource Report 3 is a report entitled, “Nearshore Marine Habitat Survey and Review of Existing Information of Marine Biology and Fisheries Resources.” This report, commissioned by GSX-US and authored by Chris Fairbanks and Mary Terra of Duke Engineering and Services reviews many reports specific to Cherry Point, including several authored by M.A. Kyte. The Resource Report is available for review at Ecology’s Northwest Regional Office (3190 160th Avenue SE, Bellevue, WA 98008-5452).

Comment 3

GSX-US commissioned a report titled “Nearshore Marine Habitat Survey of the Gulf Road Site and Additional Information for the Cherry Point Landfall” authored by Chris Fairbanks and Mary Terra of Duke Engineering and Services. This report, summarized on page 3-54 of the FERC Final EIS, identifies the three bands of marine vegetation in the nearshore area at Gulf Road. As described in the FERC Final EIS the vegetation extending from a depth of +3 feet to -2 foot MLLW was uniform across the survey area. Observed vegetation included low growing algae (*Ulva*, *Porphyra*, *Iridaea*, and *Fucus*). The substrate in Band 1 consisted of boulders and cobbles. The use of the term rock beach is intended to be interchangeable with boulders and cobbles.

Comment 4

See Comment 3. The two marine vegetation studies referenced above provide site-specific information for the proposed landfall and Gulf Road pipestring launch site. The applicant has not proposed a major disturbance at either site. The nearshore environment at the landfall will be avoided with the use of a horizontal directional drill (HDD). The activity proposed at the end of Gulf Road would involve only the temporary placement of pipe support rollers on the beach. No grading, excavation or removal of cobbles or gravels is proposed.

Comment 5

Comment noted. Section 3.7 of this Final SEIS includes a discussion of the proposed Cherry Point Aquatic Reserve and an overview of the process for environmental review.

IND-9

Comment 1

Please refer to Letter IND-5, Comment 2.

Comment 2

Comment noted.

Comment 3

Comment noted.

Comment 4

Comment noted. Section 2.4.1 of the Draft SEIS contained an overview of the NorskeCanada Energy Project.

Comment 5

Comment noted.

Comment 6

The discussion of leak detection limits in both the Draft SEIS and the NEB review focused on a sensitivity level of 1% of the total throughput of the pipeline. As noted in the Draft SEIS, the system is still in the early stages of design and would require calibration and fine-tuning once the pipeline is operational. The numbers presented are design parameters that represent the minimum sensitivity that could be expected. Once the system is actually calibrated and fine-tuned for the pipeline, the sensitivity threshold be lower. Also, the leak detection system is only one method of identifying leaks. Many other system controls and maintenance activities will be in place that will also assist in detecting leaks.

The reference in the NEB review to nine (9) hours to empty the pipeline in the event of a rupture was based on the worst case assumption that a full severing of the marine pipeline would occur near one end of the marine section and that the valves on either side of the marine section would then be closed and the pipeline allowed to empty through the severed pipeline and into the water. In reality, GSX-US would likely isolate the section and then vent the gas to the atmosphere at the valves on either side of the marine section. This would greatly reduce the time to empty the pipeline and greatly limit the amount of gas released to the marine environment.

IND-10

Comment 1

Section 3.5.4 of the Draft SEIS contained additional analysis of potential impacts and mitigation measures related to the sea bottom and bottom trawling.

Comment 2

Comment noted.

IND-11

Comment 1

Please refer to Letter IND-5, Comment 2.

Comment 2

The Terasen Gas alternative was described in Section 2.3 of the Draft SEIS.

Comment 3

Ecology does not agree that 401 and CZM permitting processes were waived, nor that deadlines were missed. While GSX-US has filed a petition with FERC with such allegations, FERC has not ruled that 401 and CZM permitting processes were waived.

Comment 4

Section 3.7 of the Draft SEIS acknowledges that the GSX-US pipeline would cross the Cherry Point Major Port/Industrial UGA.

Comment 5

The focus of the issue identified by Ecology for discussion in Section 3.2 of the Draft SEIS was the proponent's claim about the crossing of onshore faults. That is why Figure 3-1, which shows the pipeline crossing the Sumas and Vedder Faults, was included. However, the discussion under Affected Environment also acknowledges the presence of numerous potentially active faults within the marine waters of the Canadian Gulf Islands. Those faults were also documented in Section 3.1 of the FERC Final EIS and the Environmental Assessment for the GSX-US-Canada portion of the project.

Comment 6

Please refer to Section 3.5.9 of the Draft SEIS, which summarizes previous studies of raptors and the WDFW Bald Eagle Management Plan. One bald eagle nest is located within 0.5 miles of the proposed pipeline route in the vicinity of California Creek. The proposed pipeline would be 60 feet from the nest tree.

Comment 7

Stream crossing methods proposed for Tarte Creek and Campbell Creek were developed in consultation with biologists from WDFW familiar with the fisheries resources in those streams. The applicant has been in contact with the USDA Natural Resources Conservation Service (NRCS) regarding salmon habitat restoration and there are no identified conflicts between restoration projects and the pipeline. The U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries have provided concurrence letters based on the proposed crossing methods. Mitigation

for each stream crossing is detailed in the applicant's Wetland and Riparian Restoration Plan. The size of this document and number of streams crossed precluded a discussion in the Draft SEIS of mitigation at each stream crossing. Regulatory agencies are currently reviewing the Plan in concert with stream and wetland crossing permits.

IND-12

Comment 1

Your comment in support of the proposed project is noted.

ORG-1

Comment 1

Please refer to Letter IND-5, Comment 2.

Comment 2

Potential impacts to the pipeline from geologic hazards was addressed in Section 3.1.2 of the FERC Final EIS. Additional discussion is contained in Section 3.2 of the Draft SEIS. Please refer to Letter IND-9, Comment 6 for a discussion of measures to mitigate potential pipeline rupture. Additional discussion of pipeline safety measures is included in Section 3.6 of the Draft SEIS.

Comment 3

Please refer to revised Section 3.12 – Noise in this Final SEIS. The USFWS and NOAA Fisheries have written concurrence letters reflecting completion of the consultation process.

Comment 4

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology's review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

Comment 5

See Comment 4, above.

Comment 6

Please refer to Section 3.6 of the Draft SEIS and Section 3.13 of the FERC Final EIS for discussions of measures to ensure pipeline safety.

Comment 7

The USFWS and NOAA Fisheries have written concurrence letters reflecting completion of the consultation process.

Comment 8

Potential impact to nearshore habitat was not identified by Ecology as a specific issue to be addressed in the Draft SEIS. However, potential nearshore impacts associated with the HDD at Cherry Point are discussed in Section 3.3.9. Impact to nearshore habitat was also assessed in Section 3.7.1 of the FERC Final EIS.

Comment 9

The proposed GSX-US pipeline is not expected to result in impacts to aerial or marine navigation. Impacts to marine navigation are discussed on pages 3-112 to 3-117 of the FERC Final EIS.

Comment 10

Comment noted.

ORG-2

Comment 1

Comment noted.

Comment 2

Comment noted. Please refer to Letter IND-5, Comment 2.

Comment 3

Comment noted.

Comment 4

Comment noted.

Comment 5

Comment noted.

Comment 6

Comment noted.

Comment 7

Comment noted.

Comment 8

Comment noted.

Comment 9

Comment noted.

Comment 10

Comment noted.

ORG-3

Comment 1

Your recommendation regarding Ecology's action on the water quality certification is noted for the record.

Comment 2

Although your comment on the FERC Final EIS is outside the scope of issues established for the Draft SEIS, please refer to Section 2 of the Draft SEIS for a discussion of project alternatives.

Comment 3

Comment noted.

Comment 4

Your comment in support of the Draft SEIS is noted for the record.

Comment 5

Please refer to Section 3.5.7 of the Draft SEIS for a discussion of the proposed compensatory wetland mitigation plan. Potential impacts to nearshore habitat are discussed in Sections 3.3 and 3.5 of the Draft SEIS. Potential impact to orca whales is outside the scope of the issues identified by Ecology for the Draft SEIS. However, impacts to marine mammals were addressed in Sections 3.5.2 and 3.8.2 of the FERC Final EIS.

Comment 6

Please refer to Section 3.3.4 of the Draft SEIS. GSX-US is not requesting approval for an "Open Cut" alternative because the horizontal directional drill (HDD) method is the method that will be used to install the shore crossing for the Georgia Strait Crossing Project near Cherry Point Washington. Based on its own extensive studies, GSX-US has concluded that the HDD shore approach at Cherry Point is achievable with nearly 100% probability of success and is the primary and preferred method to construct the GSX-US Pipeline shore crossing.

Comment 7

It is important to note that the referenced incident involved a liquids pipeline, which has different characteristics than a natural gas pipeline. However, the discussion concerning GSX-US plans for leak detection and mainline valves in Section 3.6.2 of the Draft SEIS incorporated lessons learned from that event. For example, "With the exception of the valves at Cherry Point and Sumas, local operations personnel must physically operate the valves. The valves at Cherry Point and Sumas could be closed by remote operators from the gas control center in Salt Lake City or

manually by local operations personnel.” All valves will be required to be opened manually by local operations personnel.

Comment 8

Energy use and conservation was not within the scope of the issues identified by Ecology for analysis in the Draft SEIS and, therefore, will not be addressed in the Final SEIS.

Comment 9

BC Hydro does not own or operate any gas pipelines. Williams currently owns two interstate natural gas transportation pipelines. The responses below outline the requested information from the date the respective pipelines were purchased by Williams to present. This response is limited to the natural gas pipelines owned by Williams.

Williams Gas Pipelines

1982 -- Williams purchased Northwest Energy Company, which included the system that now operates as Northwest Pipeline Corporation (Northwest Pipeline).

- *Northwest Pipeline:* The 3,900 mile system transports natural gas from major basins in western Canada, Wyoming, Colorado and New Mexico to markets in the Pacific Northwest and Intermountain West.

1995 -- Williams acquired Transco Energy Company, which ownership included a major natural gas transportation system in the eastern half of the United States: Transcontinental Gas Pipeline Corporation (Transco).

- *Transco:* The 10,500-mile system transports natural gas from the Gulf Coast to markets in the eastern and southeastern states.

Safety Facts

The Department of Transportation’s Office of Pipeline Safety defines an “incident” as:

- An event that involves a release of gas, and;
- The combination of the value of the lost gas, the cost to repair or replace the section of pipeline and any property damage exceeds \$50,000, or;
- Results in an injury.

Northwest Pipeline - Reportable Incidents Since Williams Acquisition (1982 to Present)

- One company death and two company injuries (associated with the same incident). No public injury associated with the operation or maintenance of the facility from the time the pipeline was placed in to service.

- 29 DOT reportable incidents from 1982 to Present

Reportable Leaks – 6 total

Material & Construction – 6

Reportable Ruptures – 23 total

Material – 5

Landslides – 9

Corrosion – 1

Stress, Corrosion, Cracking – 2

Operator Error - 1

Other – Third Party – 5

Transco - Reportable Incidents Since Williams Acquisition (1995 to Present)

- No public injury associated with the operation or maintenance of the facility from 1995 to present.
- 7 DOT reportable incidents from 1995 to present

Onshore Pipelines – 5 Reportable Incidents

Reportable Leaks – 4

Third Party Damage - 2

Material – 2

Reportable Ruptures – 1

Third Party Damage – 1

Offshore Pipelines – 2 Reportable Incidents

Reportable Leaks – 1

Material – 1

Reportable Ruptures – 1

Material – 1

ORG-4

Comment 1

Comment noted.

Comment 2

The purpose of the SEIS is not to recommend, or presume, a final action on the project proposal. The responsibility for that decision rests with the State of Washington Department of Ecology through the regulatory review process. The issue of seismic risk, based on the SEIS and other available research and analyses, will be one of the many factors weighed by the state in its final decision.

Comment 3

GSX-US and its contractors have evaluated the proposed shore crossing in great detail and have concluded that the shore approach and the subsequent crossing of the Cherry Point Aquatic Reserve using the HDD method has a probability of success of nearly 100%. This has been documented in several ways as indicated below:

- Jacques Whitford & Associates (JWA) of Vancouver British Columbia, prepared a detailed site-specific geotechnical investigation for the Cherry Point shore crossing (“Geotechnical Investigation, Georgia Strait Crossing, Cherry Point Shoreline Crossing, Washington State”, July 25, 2001). The investigation included field coring on the site as well as the follow up geotechnical engineering required to fully analyze the location for the proposed pipeline installation using the HDD method. The report concluded: "For the recommended profile shown on Drawing 2, we estimate a probability of almost 100% for the HDD installation being successful."
- Bids were requested and received from the premier horizontal directional drill contractors in North America. The contractors conducted site visits and tendered proposals to do the work indicating their confidence in success of the HDD method for the GSX-US shore crossing at Cherry Point.

In addition to the above, even more documentation is available indicating the probable success of an HDD at Cherry Point. The HDD method of pipeline installation across environmentally sensitive areas has been utilized on thousands of occasions all over North America and around the world to cross rivers, streams, wetlands, and shorelines. Two recent such examples are:

- In 2002 and 2003 the HDD method was used to install two 30-inch diameter and one 24-inch diameter pipeline shore crossings for the Algonquin Transmission Company’s HubLine Project recently installed off the coast of Massachusetts near Boston. Impacts to the near shore environments were minimized during installation by using the HDD method. The 30-inch crossings are approximately 3,000 to 5,000 feet in length, respectively. The 24-inch crossing is approximately 2,400 feet in length. That project encountered engineering,

construction, and environmental conditions similar to those to be addressed for the GSX-US Cherry Point shoreline HDD crossing.

- In 2002, a 36-inch high pressure natural gas pipeline shore crossing was completed for the Gulfstream Pipeline System in Florida. The crossing was 36 inches in diameter and approximately 4,700 feet long. The HDD resulted in minimal impact to an environmentally sensitive near shore area.

In summary, the HDD method is the best way to cross any environmentally sensitive area including the Cherry Point State Aquatic Reserve. GSX-US is utilizing the premier geotechnical engineering, engineering design, and construction firms in the industry to design and install the proposed HDD crossing.

Comment 4

The effects of sediment releases during construction and in the event of a pipeline rupture were described on pages 3-36, 3-72, 3-73, 3-85 and 3-86 of the FERC Final EIS. References are included in Appendix M of the FERC Final EIS.

Comment 5

The impact to tribal fisheries was not one of the issues included in the scope of the Draft SEIS because Ecology determined it had been adequately addressed in the FERC EIS. Substantial Native American consultation was undertaken during the FERC process and is documented in Section 3.10 of the FERC Final EIS. A Traditional Use Study for the Sencot'en Alliance dated June 27, 2002 and was filed by GSX-US-Canada as a confidential document with National Energy Board (NEB). The Alliance subsequently withdrew from the NEB proceedings.

Comment 6

Comment noted.

Comment 7

Comment noted. A final determination will be made by Ecology on the extent of the project's compliance with the policies and regulations in the federal Coastal Zone Management Act and the state's Shoreline Management Act.

ORG-5

Comment 1

Your recommendation regarding public access to the shoreline is noted.

ORG-6

Comment 1

It is not the purpose of the SEIS to recommend, or conclude, that one alternative is or is not superior to another. That judgement will rest with the State of Washington Department of Ecology after a fair and objective review of the analyses, and will be one of many considerations by Ecology as part of the regulatory review process.

Comment 2

Comment noted. Please refer to Section 3.6 of the Draft SEIS for an updated discussion of pipeline safety measures.

Comment 3

Comment noted.

Comment 4

Please refer to Letter IND-5, Comment 2 for a summary of the upcoming Canadian evaluation under the Call for Tenders.

Comment 5

Please refer to Section 2 of the Draft SEIS for a description of the Canadian alternatives.

Comment 6

Refer to comment 4.

Comment 7

Please refer to Section 2 of the Draft SEIS for a description of the updated Terasen Gas (formerly Centra) alternative.

Comment 8

Comment noted.

Comment 9

See Letter SA-1, Comment 5. Further, since the WUTC submitted comments on the FERC Draft EIS, they have (in verbal discussions with GSX-US and Ecology), withdrawn all of their recommendations except for numbers 2 and 4 (as numbered in the Re Sources comments). GSX-US did not rebuke item 4 as suggested but, as stated in the Draft SEIS, committed to running a

baseline caliper pig. Further, GSX-US is committed to applying a Risk Management Process (RMP) as part of a systematic and comprehensive Integrity Management Plan (IMP) to reduce the risk of pipeline failure. The process will include the use of an Integrity Assessment Program to assist in developing proper intervals and plans for internal inspections and other maintenance activities.

Comment 10

Because the comment focuses on the FERC Final EIS, it is outside the scope established by Ecology for the Draft SEIS. However, the intent of the Draft SEIS was to give more consideration to the Canadian project alternatives.

Comment 11

Because the comment focuses on the FERC Final EIS, it is outside the scope established by Ecology for the Draft SEIS. The project proponent has recently filed an Application for Permit with the U.S. Army Corps of Engineers for review under Section 10 of the Rivers and Harbors Act, and Section 404 of the Clean Water Act (Reference Number 200301064).

Comment 12

Because the comment focuses on the FERC Final EIS, it is outside the scope established by Ecology for the Draft SEIS. The seismic issue identified as a part of that scope is discussed in Section 3.2.2 of the Draft SEIS.

Comment 13

Comment noted.

Comment 14

Comment noted.

Comment 15

Because the comment focuses on the FERC Final EIS, it is outside the scope established by Ecology for the Draft SEIS. The issues identified as a part of that scope for nearshore habitat are discussed in Sections 3.3 and 3.5 of the Draft SEIS.

Comment 16

A discussion of the volume and dispersal of sediment from the glory hole is discussed in Section 3.2.2 of the FERC Final EIS. The FERC Final EIS also concludes the sediment is not contaminated with heavy metals or organic compounds (Ecology 1999). Contaminated sediments are also discussed on page 3-34 of the FERC Final EIS. That analysis concluded that the GSX-US project poses little risk of resuspending contaminated sediment.

Comment 17

Because the comment focuses on the FERC Final EIS, it is outside the scope established by Ecology for the Draft SEIS. The fisheries-related issue identified as a part of that scope is discussed in Section 3.5.4 of the Draft SEIS.

Comment 18

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology’s review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

Comment 19

Comment noted.

ORG-7

Comment 1

Comment noted.

Comment 2

Comment noted. Geomagnetic cues are outside the scope of issues identified by Ecology for the Draft SEIS.

Comment 3

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology's review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

Comment 4

The consideration of impacts to bald eagles in the Draft SEIS was limited to the Bald Eagle Management Plan, which is discussed in Section 3.5.9.

Comment 5

Copies of documents referenced in the Draft SEIS are available for review at the Department of Ecology's Northwest Regional Office (3190 160th Avenue SE, Bellevue, WA 98008). The Draft and Final SEIS documents are available for review or download online at www.ecy.wa.gov/programs/sea/gsx/; at Ecology offices in Bellingham and Bellevue; at libraries in Bellingham, Blaine, Ferndale, and Lynden; and at the B.C. city libraries of Ocean Park and White Rock.

SA-1

Comment 1

Comment noted. The issue of project purpose and need received considerable attention during preparation of the Draft SEIS.

Comment 2

Refer to Letter IND-5, Comment 2.

Comment 3

Note that Plants and Animals Issue 2 is now Issue 16: Non-Listed Federal and State Species. Ecology considers the reference to the Resource Report and the cited studies to be sufficient in response to the issue.

Comment 4

Note that Plants and Animals Issue 7 is now Issue 21: HDD Impacts to Marine Plants and Animals. Ecology considers the reference to the Resource Report and the cited studies to be sufficient in response to the issue.

Comment 5

Note that Reliability and Safety Issue 1 is now Issue 25: Pipeline Protection Measures. Local operations personnel based in Sumas, Washington will be available 24 hours/day, 7 days/week, 365 days/year to operate the pipeline and respond as necessary. In the event of a leak, the response time would depend on the nature and location of the leak, and the location of the nearest operations personnel at the time of the event. Likewise, the time that it would take to stop or react to an upland leak or an offshore leak would depend on the nature of the leak and the time required to identify the leak. The time required to identify a leak would depend on the size of the leak. Larger leaks could be identified very quickly, and remote valves could be closed or operations personnel could respond quickly to close manual valves to isolate the leak as necessary. Smaller leaks are more difficult to identify and, therefore, identification could take longer.

Underwater valves are not proposed for the marine section due to maintenance difficulties, and the inability to “blow-down” the valve once a section is isolated. If necessary, GSX-US would prefer to vent gas from the marine pipeline to the atmosphere at an aboveground valve rather than in the marine environment. Therefore, GSX-US proposes valves each end of the marine section to allow isolation of the marine pipeline and venting to the atmosphere, if necessary.

A full severing of the marine pipeline could require up to nine (9) hours to evacuate the entire marine section (see Letter IND-9, Comment 6). However, as discussed in the FERC Final EIS (Sections 3.3.3.2, 3.6.2 and 3.7.1), the impacts of an offshore release would likely be limited to

localized increases in turbidity due to temporary scour of sediment. Further, methane is a natural and common molecular component of seawater and benthic sediments in the project area. Residual methane dissolved in seawater as a result of a line break would represent a minor incremental change in water chemistry and quality. Potential impacts of methane are discussed on page 3-72 of the FERC Final EIS.

The design and required safety standards for the GSX-US pipeline are under the jurisdiction of the U.S. Department of Transportation's Office of Pipeline Safety (OPS). While the Washington Utilities and Transportation Commission (WUTC) serves as an agent for OPS (to inspect pipelines for compliance with 49 CFR 192), their comments on the FERC Final EIS were submitted in their role as an intervenor and not as an agent for OPS. The WUTC has no authority to impose standards that vary from the applicable portions of 49 CFR 192. As discussed in more detail in the response to Letter ORG-6, Comment 9, only one of the WUTC's recommendations was rejected. Odorization of the gas in the GSX-US pipeline is not required. Other means to identify and avoid leaks and hazards that are accepted industry practice, in addition to the leak detection system, will be implemented.

Comment 6

Note that Air Quality Issue 1 is now Issue 37: Wind Patterns. A cumulative wind rose for the 7-year period from 1995 to 2001 at Cherry Point has been included in Section 3.11 of this Final SEIS. The GSX-US pipeline will transport only methane, which is exempt from NWAPA air quality permitting regulations for natural gas venting/blowdowns (NWAPA Sections 300.4 and 300.5). However, any scheduled or unscheduled blowdowns from a mainline valve would be subject to NWAPA's general nuisance regulations. Therefore, GSX-US would be required to address any nuisance issues (odor, noise) resulting from venting with affected landowners. On the other hand, the Cherry Point Compressor Station is subject to NWAPA air quality permitting regulations and is currently under State review.

Comment 7

Note that Air Quality Issue 2 is now Issue 38: Dispersion Mapping. This issue is outside the scope of the issues identified by Ecology for the Draft SEIS. Cumulative impacts were assessed in Section 3.14 of the FERC Final EIS. This issue focused on the specific need for dispersion modeling. Ecology is satisfied with use of the PSD threshold to determine if dispersion modeling is required. Please refer to Letter LA-2, Comment 2, which summarizes the proponent's current efforts at dispersion modeling.

SA-2

Comment 1

Ecology anticipates that any requirements specific to DNR policy for impacts to state-owned lands would be administered through the Aquatic Land Lease for the GSX-US project.

Comment 2

While the adequacy of the FERC Final EIS has been appealed, it has not been found to be inadequate. If the FERC Final EIS is determined to be inadequate, the lead agency (FERC) would be responsible for addressing the inadequacy. The fact sheet in the Draft SEIS appropriately stated that the FERC Final EIS was the subject of an appeal, as specified in WAC 197-11-630(5).

Comment 3

See Letter IND-5, Comment 2. The applicant is not barred from seeking approvals based on a speculative need for the GSX-US pipeline. Canada's National Energy Board (NEB) recently approved the Canadian portion of GSX-US, conditioned on the approval of VIGP by the BCUC. See NEB Website: https://www.neb-one.gc.ca/newsroom/releases/nr2003/nr0328_e.htm.

Comment 4

Under the SEPA Rules (WAC 197-11-440) not all of the alternatives need be presented in an equivalent detail, nor is a matrix required. However, the FERC Final EIS already contains information and analysis related to the alternatives identified for updating or additional analysis in the SEIS. The Terasen Gas alternative is an update of the original Centra alternative discussed in the FERC Final EIS. The No Action alternative was also analyzed in the FERC Final EIS. However, the NorskeCanada proposal was not included in that analysis.

Comment 5

Please keep in mind that the Draft SEIS is a Supplemental EIS and is not intended as a "stand-alone" document. The Draft SEIS summarizes and references appropriate sources of information that were not included in the FERC Final EIS. The distribution list for FERC Final EIS indicates that DNR received five (5) copies of the document. In addition, the FERC Final EIS was made available in both electronic and hard copy format.

Comment 6

The analysis of land ownership is outside the scope of the issues identified by Ecology for the Draft SEIS.

Comment 7

The Draft SEIS refers to a condition of the Federal Energy Regulatory Commission's (FERC) Certificate of Public Convenience and Necessity (CPCN) that requires GSX-US to complete a post-construction survey to assess any impacts to marine vegetation from drilling mud. This CPCN requirement does not address specific measures for the prevention of a drilling mud release. Rather, in the event any impacts are observed, GSX-US is required to develop a plan in consultation with WDNR, WDFW, NOAA Fisheries and other applicable agencies to mitigate observed impacts.

Comment 8

Figure 3-1 has been revised for this Final EIS.

Comment 9

Note that Geology and Soils Issue 1 is now Issue 4: Active Earthquake Faults. Sections 3.1 and 3.2 of the FERC Final EIS discuss the onshore and offshore sediments for the U.S. portion of the project, and the potential impacts resulting from a seismic event. It includes a discussion of the geologic conditions at Cherry Point with respect to GSX-US' proposed HDD at that location. In addition to Cherry Point, the applicant proposes to use the HDD method at eight stream crossing locations. The applicant has completed detailed geotechnical studies for each of the proposed HDD locations. The studies determined that only one fault, the Sumas Fault at about MP 6.4, is located in proximity to an HDD site (Johnson Creek at MP 6.3). In the event the initial HDD is unsuccessful, the applicant would implement the measures described in the response to Letter SA-2, Comment 19 and Comment 24.

Comment 10

A description of marine vegetation at both Cherry Point and Gulf Road is provided in Section 3.4.4 of the FERC Final EIS and a discussion of the herring spawn off Cherry Point is provided on pages 3-71 and 3-72. Because in-water work would be timed to avoid the herring spawn, no impacts are anticipated.

The pipeline would be installed using the HDD method from approximately 900 feet landward of the bluff at Cherry Point to a point about 3,300 feet offshore at -130 feet MLLW. The majority of commercially and recreationally important marine invertebrate species are located at depths of less than 100 feet. Because the pipe would be directionally drilled well below the surface, there is little potential for scour.

There are a total of six (6) mainline valves on the GSX-US pipeline between Sumas and Cherry Point. All mainline valves are located so that there are multiple access points from established roads. The intermediate mainline valves will not be remotely operated from Salt Lake City, Utah. However, through the SCADA system, operators in Salt Lake City will be able to remotely monitor (upstream & downstream pressure, valve open/close/mid) and close the mainline valves at the Sumas and Cherry Point compressor stations. These mainline valves will be supplied with

AC electric service with backup DC battery systems. Communications will be handled through a microwave system with backup landline facilities. For further discussion of the mainline valves and response, refer to Section 3.6.2 of the Draft SEIS.

Comment 11

The pipeline will be partially trenched into the marine sediments for the first 4.8 miles (approximately) running westward starting from the HDD exit point about 3,170 feet offshore of Cherry Point in about 134 feet of water depth. The benthic biota are typical marine soft bottom organisms that could readily re-colonize a disturbed area. A rupture of the buried marine pipeline under the DNR Cherry Point Aquatic Reserve could cause sedimentation and anoxic conditions resulting in disturbance or death to the Cherry Point herring, juvenile salmonids, and other organisms, if present.

Comment 12

Impacts of a ruptured pipeline to fish and shellfish is outside the scope of issues identified by Ecology for the Draft SEIS. However, this issue was addressed in the FERC Final EIS Sections 3.5.2 (marine mammals), 3.6.1 (fish), and 3.7.1 (invertebrates).

Comment 13

Comment noted. Emergency scenarios were addressed in Section 3.13 of the FERC Final EIS.

Comment 14

As stated on page 3.2-3 of the Draft SEIS, there were no analyses of potential seismic impacts available for the Terasen Gas alternative.

Comment 15

Note that Geology and Soils Issue 2 is now Issue 5: Potential Scour Impacts. The method used to calculate the estimated scour is explained in Section 3.2.3 of the Draft SEIS.

Comment 16

As stated on page 3.2-3 of the Draft SEIS, there were no analyses of potential scour impacts available for the Terasen Gas alternative.

Comment 17

Note that Surface Water Issue 1 is now Issue 6: Impaired Waterbodies. Waterbodies that may be affected are described under “Impacts – Proposed Action”, and includes the list of 303d waters in Table 3.3-1.

Comment 18

See Comment 17.

Comment 19

As stated in Section 3.3.7 of the Draft SEIS: “There is not a hard and fast rule for the number of times an HDD or conventional bore is attempted before the decision is made to use an alternate method. Factors that may be considered in this decision are the specific cause of the failure and the soil conditions encountered.

For example, the corrective measure may involve a determination that the existing hole encountered a void, which could be bypassed with a slight change in the profile. In other cases, it may be determined that the existing hole encountered a zone of unsatisfactory soil material and the hole may have to be abandoned. In this case, it may be possible to use an alternate adjacent alignment contained in the right-of-way to drill a new hole.”

In most instances, it is not practical to move to a more distant location for another attempt as alignment changes much greater than this would require route revisions on adjacent landowners. Therefore, all potential impacts should be limited to one site contained within the right-of-way and approved temporary workspace.

Comment 20

Ecology determined that no further consideration of potential significant unavoidable adverse impacts was required for this issue.

Comment 21

WDFW will be involved in each stream crossing action to ensure that fish protection measures are tailored and in place for each specific area. As a general rule, stream crossing work will be performed in the drier time of the year when it is determined that there are the least potential impacts to both adult and juvenile salmonids. The “flume” type crossing method provides a conduit for the stream to flow across the construction area while the trench is tunneled under and perpendicularly adjacent to the flume. Routing the stream out of the streamway, as suggested by the reviewer, is problematic due to potential bank and riparian disturbances.

Comment 22

Specific construction techniques for the Terasen Gas alternative have not been identified.

Comment 23

In-water work would be conducted during periods that avoid impacts to both herring eggs and the herring themselves (see page 3-70 of the FERC Final EIS). Therefore, impacts to herring

eggs are not anticipated. Impacts to marine invertebrates are discussed on pages 3-83 to 3-88 of the FERC Final EIS.

Comment 24

Note that Surface Water Issue 3 is now Issue 8: Open Cut Alternative. Geotechnical studies conducted for HDD or conventional bore stream crossing locations indicate a very high probability of success. Discussions with pipeline contractors experienced with the technique further support the feasibility of proposed stream crossing methods.

The applicant has prepared a contingency plan for an open cut crossing in the event of an unsuccessful HDD or bore. The plan is contained in Section 5.3 – Contingency Crossing Methods of GSX-US’s Wetland and Riparian Restoration Plan (June 2003). The contingency plan states (in part):

“If, however, a proposed trenchless crossing is not successful, GSX-US will implement the following procedure:

- Attempt additional drill(s) or bore(s).
- If an HDD fails, evaluate the feasibility of completing the crossing using a CB.
- If neither an HDD nor CB is feasible, the conditions contained in FERC Mitigation Measure No. 12 will be addressed and an open cut dry-flume (OCD) crossing will be installed.
- GSX-US will prepare and implement a site-specific crossing plan comparable to those contained in DETAIL A-2. Since there will be additional disturbance to the stream bed and riparian zone resulting from an open cut, GSX-US will consult with involved regulatory agencies to determine the location and extent of any additional compensatory mitigation that may be necessary.”

DETAIL A-2, referenced above, identifies timing constraints, erosion control, dewatering, equipment crossing method, bank reestablishment, substrate replacement, topsoil salvage and redistribution, decompaction, seedbed preparation, seeding method and mixture, tree/shrub planting, woody debris installation and buffer establishment.

Comment 25

Note that Surface Water Issue 4 is now Issue 9: Wet Ditch/Dry Ditch Methods. See the response to Comment 21. Since the larger streams will all be bored underneath to avoid related trenching impacts, the smaller streams should be readily capable of being crossed by the proposed method with minimal impact.

Comment 26

Note that Surface Water Issue 4 is now Issue 9: Wet Ditch/Dry Ditch Methods. Comment noted.

Comment 27

The use of clean gravel was recommended to minimize sedimentation in fish-bearing and 303(d) streams. The applicant has prepared a lengthy Wetland and Riparian Restoration Plan (June 2003) outlining mitigation for each crossing. The plan is summarized in Section 3.5.6 of the Draft SEIS. The size of the Draft SEIS and number of streams crossed precluded a discussion of mitigation at each stream crossing. Regulatory agencies are currently reviewing the Plan in concert with stream and wetland crossing permits.

Comment 28

Section 3.5.7 of the Draft SEIS contains a summary of the Wetland and Riparian Restoration Plan.

Comment 29

Note that Surface Water Issue 5 is now Issue 10: Equipment Impacts in Waterbodies. The pipeline will be installed using the techniques described in the Draft SEIS and FERC Final EIS. The use of bridges to cross perennial streams is for equipment access only. This prevents equipment traffic from fording perennial streams. A table of each waterbody and proposed crossing method is provided in the FERC Final EIS, Appendix I, Table I-1.

Comment 30

The applicant will install the pipeline using the HDD method at the specified locations, unless that method fails.

Comment 31

Note that Surface Water Issue 6 is now Issue 11: Open Cut Crossing Impacts. The flume crossing method is a form of open cut that isolates stream flow from the trench using sand bags and culverts so that sedimentation and turbidity are minimized. Therefore, it is often referred to as dry-ditch method. The “conventional” open cut method also uses a trench but does not isolate stream flow from the trench. The “conventional” open cut method is only proposed for crossings that are dry or non-fish bearing. Bridges are only used for equipment access so that streams are not forded. All stream crossing methods were determined through consultation with appropriate regulatory agencies.

Comment 32

For pipe installed using the flume method, the area that requires dewatering is located between the upstream and downstream sandbag dams. Typically, there is a finite amount of water since it

is contained by the dams. However, for pipe installed using a bore method, bore pits are required on both sides of the stream to accommodate the equipment necessary to complete the installation. Therefore, these pits must be kept dry for the safety of personnel and equipment. Typically, water continues to follow natural underground drainage patterns and flows into the pits, requiring frequent pumping and dewatering.

Comment 33

The applicant is required to maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses. Measures to maintain flow rates are described in Appendix D of the FERC Final EIS.

Comment 34

Note that Surface Water Issue 7 is now Issue 12: Hydrostatic Water Test Discharge. Although there are no on-site conditions that indicate the hydrostatic test dewatering site would be relocated, the applicant is required by FERC and other agencies to mitigate any and all disturbances associated with the project. Mitigation measures included in Section 3.3.8 of the Draft SEIS and those included in the FERC Final EIS (Upland Erosion Control, Revegetation and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures) would be implemented for the proposed and any alternative hydrostatic test water discharges sites.

Comment 35

Other potential dewatering sites would be located in the same vicinity (i.e. near the Cherry Point compressor station) as the proposed dewatering location. The exact location would be determined based on an evaluation of site conditions during construction. GSX-US would not locate the dewatering site in any wetlands or sensitive waterbodies.

Comment 36

See Comment 5.

Comment 37

Impacts to fish from sediment are discussed in Section 3.6.2, page 3-69 of the FERC Final EIS. The timing of construction, short duration of increased sedimentation, and localized areas of turbidity are unlikely to result in significant impacts to migrating fish.

Comment 38

No compensatory mitigation has been proposed due to the minimal, localized and temporary nature of impacts.

Comment 39

See responses to Comments 23 and 41.

Comment 40

Moderate to high levels of sediment may impact fish or invertebrate species, however it is unlikely that the sediment levels or extent of sedimentation produced by construction of the GSX-US pipeline would significantly affect these species. This assessment is based on reports quantifying sediment quantities and dispersion for the project. These include:

Hodgins, D.O., S.L.M. Hodgins and B.N. Lea. 2001 (July). Georgia Strait Crossing Project: sediment plume dispersion modeling study. Seaconsult Marine Research Ltd., Vancouver, British Columbia. 33 pp. plus appendices.

Hodgins, D.O. 2001 (July). Dispersion of drilling fluids in the Strait of Georgia. Letter report to R. Glaholt, Tera Environmental Consultants Ltd. from Seaconsult Marine Research Ltd., Vancouver, British Columbia. 6 pp.

Hodgins, D.O. 2001 (August). Georgia Strait Crossing Project: pipeline trench infilling study. Seaconsult Marine Research Ltd., Vancouver, British Columbia. 6 pp.

Hodgins, D.O. 2002 (March). Impact area associated with drilling mud and cuttings at the HDD. Letter report to R. Glaholt, Tera Environmental Consultants Ltd. From Seaconsult Marine Research Ltd., Vancouver, British Columbia. 3 pp.

Comment 41

See response Comment 40. The amount and dispersion of sediment is very unlikely to cause salmon to divert to non-natal streams, especially since mouths of spawning streams are substantially removed from potential sediment sources in the Strait of Georgia. Salmon spawning streams crossed by the project will be crossed by trenchless methods or will be crossed during non-spawning time windows imposed by WDFW.

Comment 42

Ecology considers the reference to the Resource Report and the cited studies to be sufficient in response to the issue.

Comment 43

Note that Plants and Animals Issue 2 is now Issue 16: Non-Listed Federal and State Species. The discussion of impacts and mitigation to fish, mollusks and other aquatic species is addressed in various sections of the FERC Final EIS. However, Ecology concluded the Draft SEIS should provide appropriate references to the reports used to support the conclusions stated in the FERC Final EIS.

Comment 44

Note that Plants and Animals Issue 4 is now Issue 18: Noxious Weeds/Invasive Species. Ecology considers the reference to the Resource Report and the cited studies to be sufficient in response to the issue.

Comment 45

Note that Plants and Animals Issue 6 is now Issue 20: Wetland Mitigation Plan. The original Cherry Point Compressor Station site (GSX-US FERC Filing, April 2001) was relocated approximately 200 feet to the east (toward Jackson Road) and is reflected in GSX-US's Supplemental filing to FERC in October 2001. GSX-US must to use the current site as a condition of FERC's approval. Both sites are in a hay meadow.

Comment 46

Ecology considers the summary of the Wetland and Riparian Restoration Plan presented in Section 3.5.7 to be adequate. The full plan is available by contacting Ecology's Northwest Regional Office.

Comment 47

Staff from other local, state, and federal agencies were solicited for their comments concerning wetland impacts and related mitigation. A more specific response is not possible as no specific agencies or requirements were cited.

Comment 48

Note that Plants and Animals Issue 7 is now Issue 21: HDD Impacts to Marine Plants and Animals. As noted on page 3.5-16 of the Draft SEIS, the FERC Final EIS provided an analysis on page 3-83 and Appendix 3-1 of Resource Report 3.

Comment 49

The only eelgrass beds on the U.S. portion of the proposal are located along Cherry Point in the shallow nearshore, typically less than 15 feet deep (MLLW). The pipeline is proposed to enter the ground approximately 900 feet inland of the bluff face and run underground under the marine nearshore approximately 3,170 feet to a point where it will exit the bottom in about 134 feet of water. This HDD method avoids the eelgrass impacts associated with trenching.

Comment 50

The viscosifier agent, if used, will be a polymer that is both inert and non-toxic and would be used in very small amounts.

Comment 51

See response to Comment 40. The spoil from both trenching operations and dredging at the HDD glory hole will be disposed adjacent to the trench and glory hole. Studies commissioned by GSX-US indicate that there will not be significant dispersion of displaced soil.

Comment 52

Note that Plants and Animals Issue 7 is now Issue 21: HDD Impacts to Marine Plants and Animals. We agree that consultation for mitigation should be a precursor to authorization and encourage agencies with jurisdiction to do so. As a general rule, impacts that have been identified during the entire environmental review process (NEPA/SEPA) and that cannot be avoided or prevented will be addressed as conditions of the state permit/lease system including, but not limited to, shoreline permits, Section 401 Certification, and DNR bottomland leases.

Comment 53

In contrast to the Canadian landfall, a trenching or partial trenching method to cross the Cherry Point bluff and adjacent DNR Aquatic Reserve is no longer proposed and will not be authorized. Multiple attempts to complete a successful HDD bore from the area upland of the bluff may be required until a satisfactory result is achieved. Varying depths, directions and angles of approach to the shoreline may be required to complete the work. Additional detailed environmental management plans may be required, if necessary, to compliment permit conditions and requirements.

Comment 54

Note that Plants and Animals Issue 9 is now Issue 23: Forest Fragmentation. Comment noted.

Comment 55

Comment noted.

Comment 56

Note that Reliability and Safety Issue 1 is now Issue 25: Pipeline Protection Measures. Section 3.6.1 is common to all issues in the Draft SEIS that is included as a courtesy to the reader. It summarizes other sources of information and analyses relevant to the issues that are available for review. Ecology considers the updated summary of pipeline safety measures to be adequate in responding to the issue.

Comment 57

The final SCADA system design will be completed after construction so that it can be properly calibrated for actual operating parameters.

Comment 58

Note that Land and Shoreline Use Issue 1 is now Issue 26: Consistency with Plans and Policies. Section 3.7.2 of this Final SEIS has been revised to include a discussion of the proposed DNR Aquatic Reserve at Cherry Point.

Comment 59

The HDD method would obviate the potential impacts associated with excavating an enormous trench through the high bank Cherry Point shoreline.

Comment 60

Comment noted.

Comment 61

See Comment 58.

LA-1

Comment 1

The commenter does not identify a public access impact that would require such a condition. However, the project proponent could conceivably provide public access as a general amenity regardless of whether an impact is identified under SEPA.

LA-2

Comment 1

Comment noted. The list of permits in this Final SEIS has been amended to include the Order of Approval permit.

Comment 2

Note that Air Quality Issue 2 is now Issue 38: Dispersion Mapping. Comment noted.

LA-3

Comment 1

The tap valve requested by OPALCO is included in the project and would be installed during installation of the pipeline.

Comment 2

Note that Geology and Soils Issue 1 is now Issue 4: Active Earthquake Faults. See Letter IND-11, Comment 5.

Comment 3

Note that Reliability and Safety Issue 1 is now Issue 25: Pipeline Protection Measures. Sharing of pipeline safety reports and notices with local government could provide additional transparency to the system by which the safety of pipelines is ensured. An additional mitigation measure to that effect will be added to Section 3.6.

Comment 4

Note that Plants and Animals Issue 8 is now Issue 22: Measures to Protect Bald Eagles. The specific focus of Section 3.5.9 in the Draft SEIS was a summary of previous studies of raptors and the WDFW Bald Eagle Management Plan. Extent of bald eagle habitat throughout the project area was acknowledged and documented in Sections 3.5 and 3.8 of the FERC Final EIS.

Comment 5

Note that Land and Shoreline Use Issue 1 is now Issue 26: Consistency with Plans and Policies. Section 3.7.2 of this Final SEIS has been revised with additional discussion of applicable policies from the San Juan County Comprehensive Plan and Shoreline Master Program.

Comment 6

Note that Noise Issue 1 is now Issue 39: Noise Abatement Measures. Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (*e.g.*, orca or harbor porpoise). Based on Ecology's review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

FA-1

Comment 1

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology’s review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

Comment 2

See Comment 1, above.

AP-1

Comment 1

Comment noted. The NorskeCanada proposal was included under No Action because Ecology believes it could be a viable alternative if the GSX-US pipeline is not constructed.

Comment 2

Comment noted.

Comment 3

Comment noted.

Comment 4

Comment noted. Ecology does not intend to alter the process for SEPA compliance and regulatory review of the GSX-US project because of the BCUC ruling.

Comment 5

In responding to the comments received on the Draft SEIS, Ecology will have to determine if an issue is addressed in the FERC Final EIS or the SEIS. Where appropriate, the comment response will refer to the location in the FERC Final EIS where an issue was address. If an issue is identified by a commenter that is not addressed in either document, Ecology will need to determine if the issue is significant enough to warrant additional analysis in the FSEIS.

Comment 6

Your comment is not consistent with findings of the BCUC in its September 8, 2003 ruling. For example, on page 46 of the ruling it states “Since VIEC considers that VIGP and GSX-US are closely linked, and that GSX-US is the preferred transportation option, it is appropriate to evaluate VIGP on the basis of GSX-US transportation. The Commission Panel accepts that GSX-US likely would transport gas for ICP as well as VIGP. To reflect the GSX-US tolls that would apply to VIEC for gas transportation service to VIGP, the Commission Panel concludes that 50 percent of GSX-US charges should be used in the lower cost scenario for the cost of service analysis of VIGP” (Source: BCUC Decision, September 8, 2003).

Comment 7

Your disagreement with the findings in the Easterbrook et al. paper regarding the Sumas and Vedder Mountain faults is noted.

Comment 8

This is standard language in a SEPA Determination of Significance that initiates the EIS process. The emphasis in the language is on the *potential* for significant impacts that necessitates the environmental review. It does not mean that the lead agency has determined conclusively that significant environmental impacts have been identified.

Comment 9

In Section 1.1.1 of this Final EIS, the date of issuance of the FERC Final EIS has been changed to July 17, 2002.

Comment 10

This sentence in Section 1.1.1 has been revised.

Comment 11

The second sentence in Section 1.2.2 has been revised and the pipeline mileage has been changed to 45.3 miles.

Comment 12

Section 1.3 has been revised to reference the correct sections of the Final EIS.

Comment 13

Note that Project Description Issue 3 is now Issue 3: Canadian Project Alternatives. Ecology does not agree that this revision is necessary.

Comment 14

Note that Surface Water Issue 5 is now Issue 10: Equipment Impacts in Waterbodies. The language on page 1-5 has been revised.

Comment 15

Note that Plants and Animals Issue 3 is now Issue 17: Impacts to Fisheries. The reference on page 1-6 has been changed to Section 3.5.4.

Comment 16

Note that Plants and Animals Issue 8 is now Issue 22: Measures to Protect Bald Eagles. Comment noted.

Comment 17

The text in Section 2.1.1 has been revised.

Comment 18

The text in Section 2.2.2 has been revised.

Comment 19

The text in Section 2.2.2 has been revised.

Comment 20

The text in Section 2.3.2 has been revised.

Comment 21

Comment noted.

Comment 22

The Final EIS text references Williams Gas Pipeline Company.

Comment 23

Ecology does not agree that this revision is necessary.

PH-1

Comment 1

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology’s review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

Comment 2

Comment noted.

Comment 3

See Comment 1, above.

Comment 4

A discussion of the volume and dispersal of sediment is contained in Section 3.2.2 of the FERC Final EIS. The FERC Final EIS concludes the sediment is not contaminated with heavy metals or organic compounds (Ecology 1999). The analysis on page 3-34 of the FERC Final EIS concludes that the GSX-US project poses little risk of resuspending contaminated sediment. A brief discussion of potential impacts to fish and killer whales from PCBs is provided below (from comments of J.A. Jefferey Thompson, Ph.D. to testimony of David Bain during the NEB process).

Resettling begins immediately, with the heaviest particles (sand, gravel) the first to re-enter the sediment column. These are followed in a matter of minutes to hours by the finer material. Upon resuspension, there is a theoretical amount of material released from the sediment pore water and from the particles via desorption. Because of the low polarity of these compounds, they are hydrophobic and tend to adhere to particulate rather than go into solution. This tendency to adhere is represented by a partition (sorption) coefficient that varies for each of the several PCBs. These values are calculated from model experiments and show that their tendency is to either remain adhered to fine sediments, or to be re-adsorbed rapidly from the water column. In no way could a release of the total PCB content of the sediment bed occur. That fraction of contaminant remaining in solution would undergo rapid dilution in the water column to undetectable concentrations and no significant amounts would be introduced to fishes.

The potential for uptake of the low quantities of PCB’s released in the pipeline corridor by killer whales is negligible. The southern resident killer whales spend about 2 percent of their time in the pipeline corridor. Diet is the overwhelming source of PCBs in killer whales (Ross et al, 2000). For southern resident killer whales, salmonids constitute 92% of the diet with the

preferred species, chinook salmon, comprising 62% of the total food intake (Grant and Ross, 2002). Research has shown that salmon acquire an overwhelming proportion of their body burden of organochlorine pollutants during their time in the open ocean. For example, chinook salmon acquire approximately 98% of their body burden of PCBs while at sea, primarily from Asian sources (Ross et al., 2002). Therefore, exposure to PCBs associated with particulate in the Strait of Georgia is both an indirect uptake pathway for southern resident killer whales and an insignificant source overall.

Comment 5

There is no one aspect of the GSX-US pipeline that is precedent-setting with regard to installation of a marine pipeline. The pipeline is a viable and safe project that is based on sound and proven engineering and construction practice. Deepwater pipelines are built routinely in all types of environments. Today there are underwater pipelines being installed in excess of 10,000 feet (10 times the maximum depth of the GSX-US pipeline).

The design of the GSX-US pipeline accounts for the currents known to exist in the region. GSX-US conducted numerous current surveys along the marine route and commissioned reports in which the current profiles are fully described and quantified. The local currents, which are largely driven by tides, are regular and predictable.

Detailed stability analysis shows the GSX-US design to be stable. In addition, several world-class marine contractors have reviewed the GSX-US project (technical documents and site visits) and have concluded that the GSX-US pipeline can be safely and successfully installed along the route selected.

Comment 6

The GSX-US pipeline is not proposed to be laid on a mountain top. The routing of the pipeline is actually on a relatively flat area of the ocean floor and designed to avoid the rock structures that protrude above the ocean floor. GSX-US completed a very detailed hydrographic survey encompassing a swath approximately one mile wide over the 42-mile distance between Cherry Point and Vancouver Island. The survey was then used to complete a detailed structural analysis of the proposed pipeline that takes into account all marine slopes and instabilities. Bottom topography was accurately mapped and proven industry standard engineering software was utilized to analyze the pipeline, including detailed spanning and stability analysis. As a result, the current marine route provides for safe and reliable placement of the proposed GSX-US pipeline. The stresses anticipated from the rough marine bathymetry result in very low pipe stresses that are easily accommodated by the robust pipeline design.

Comment 7

See response to Comment 6.

Comment 8

Because installation stresses are well understood the chance of over-stressing the pipeline is very low. Stresses and strains in the pipeline are monitored during construction. Inspectors on board the installation vessel inspect all aspects of the contractor's operations to insure that the pipeline is being constructed as per the specifications. After the pipeline has been installed it is strength tested by bringing the internal pressure up to at least 125% of what will ultimately be the pipeline's maximum allowable operating pressure.

Comment 9

The GSX-US pipeline will be designed, constructed, operated and maintained in accordance with U.S. Department of Transportation Safety Standards (49 CFR 192). An offshore gas pipeline presents minimal risk to the public at large. The GSX-US marine pipeline has a very robust design and the possibility of a severe rupture is extremely remote – should a rupture occur however the risk to the public is extremely low.

Comment 10

See response to Comment 9.

Comment 11

The GSX-US pipeline has been designed to meet and exceed the seismic design requirements of both the US and Canadian codes. GSX-US has performed detailed seismic analysis on the marine pipeline including the possibility of down slope sliding as well as many other design considerations and has concluded that the pipeline design is extremely safe. In addition, the GSX-US pipeline has been routed to avoid those areas where there is a significant risk of seafloor sliding. The pipeline has been designed for a seismic event with a probability of exceedance of one in 475 years as well as a probability of exceedance of one in 2,500 years.

The potential for a vessel to drop an anchor on the pipeline would be the highest in the nearshore area near the BP loading facility at Cherry Point and in the deeper water near Patos Island. The potential for anchor drag is minimal in the near shore area adjacent to Cherry Point. In the nearshore area, the pipeline would be deep enough under the sea bottom (using the HDD method) so that it would not come in contact with an anchor.

Potential for anchor drag in deeper water near Patos Island is not likely because the water in that area is too deep (approximately 600 feet) for anchoring. Most marine vessels (large or small) do not carry enough anchor chain to snag the pipeline at those depths.

Even if the pipeline were snagged, it is designed to be so robust that rupture of the line is unlikely. The pipe wall consists of 0.656 inch thick, 60,000 psi steel. Finally, the completed pipeline will be shown on future navigation charts for the area.

Comment 12

Marine pipelines are generally located in areas remote from human population centers, minimizing the risk to human life from rupture or combustion. The GSX-US pipeline would be designed such that the likelihood of gas from a rupture reaching the surface and igniting is very unlikely. GSX-US is not aware of any instance in which a ruptured marine pipeline releasing gas caused a boat to sink due to loss of buoyancy.

In the very unlikely scenario of a pipeline rupture, gas would be released to the surrounding seawater where it would rise to the surface and be released to the atmosphere. In addition, tidal currents would disperse the gas (if the rupture is in deepwater) as it rises to the surface. Natural gas (methane) is not toxic, although it is flammable. The possibility of gas at the surface combusting due to the presence of a vessel is extremely unlikely as natural gas is lighter than air and would continue rising and dissipating into the atmosphere.

Comment 13

Refer to Letter LA-3 for responses to San Juan County comments.

Comment 14

Please refer to Letter IND-5, Comment 2.

Comment 15

Comment noted.

Comment 16

Comment noted.

Comment 17

A decision regarding consistency with the federal Coastal Zone Management Act and state Shoreline Management Act will be made by Ecology. San Juan County's Shoreline Master Program policies were discussed in Section 3.7.2 of the Draft SEIS.

Comment 18

See Comment 1, above.

Comment 19

See Comment 1, above.

Comment 20

See Comment 1, above.

Comment 21

The GSX-US proposal calls for 4.8 miles of the offshore pipeline to be keyed-in or buried. Impacts to marine invertebrates from pipeline installation is described in Section 3.7.2, pages 3-85 and 3-86 of the FERC Final EIS. Impacts to epibenthic fish are described in Section 3.6.2 of the FERC Final EIS.

The stability analysis performed on the GSX-US marine pipeline concluded that the pipeline would be stable and not move from its as-built configuration. Based on observations of marine pipelines elsewhere in Georgia Strait, it is anticipated the pipeline would be rapidly colonized by marine flora or fauna in areas where it remains exposed. Habitat directly traversed by the pipeline over most of its route is very low suitability for rockfish, and dominated by soft substrate. The overall habitat supply for rockfish would increase slightly as a result of pipeline construction.

Comment 22

Reference to “Artificial Reef” like structures is both appropriate and common language used in the Pacific Northwest as well as in the Gulf of Mexico and around the world. Significant resources have been invested in artificial reefs to create habitat through “Rigs to Reefs” programs and the placing of obsolete naval vessels in areas to create marine habitat. The latter has been practiced on numerous occasions in the Strait of Georgia.

Based on observations of marine pipelines elsewhere in Georgia Strait, it is likely that marine flora or fauna, in areas where the pipeline remains exposed, will rapidly colonize the pipeline. Habitat directly traversed by the pipeline route is, for much of its length, of very low suitability for rockfish and primarily dominated by soft substrate. Overall habitat supply for rockfish will slightly increase as a result of pipeline construction.

Comment 23

See Comment 1, above.

Comment 24

Comment noted.

Comment 25

Comment noted.

Comment 26

Comment noted.

Comment 27

Comment noted.

Comment 28

The pipeline is relatively simple structure that would not create substantial new habitat for any species. The opportunity for new habitat decreases as the trench fills. This is summarized on page 3-72 of the FERC Final EIS.

It is unclear from the comment which species the commentor intended to address. However, the dispersal strategy of most marine invasive species is not dependent on the presence of substrate but rather prevailing circulation patterns which have tended to result in species being found along pretty much the breadth of the Pacific Northwest from Alaska to the Baja. Therefore, the presence of the pipeline is not expected to significantly affect the dispersal of marine invasive species.

Comment 29

See response to Comment 28.

PH-2

Comment 1

See Letter ORG-4, Comment 5. The Lummi Nation submitted comments on the FERC Draft EIS in February of 2001, and Al Scott Johnny of the Lummi Nation cultural department is on FERC's mailing list and received copies of both the Draft and Final FERC EIS.

Comment 2

Comment noted.

Comment 3

Comment noted.

Comment 4

Comment noted. Please refer to Letter IND-5, Comment 2.

Comment 5

Comment noted. Please refer to Letter IND-5, Comment 2.

Comment 6

Comment noted.

Comment 7

Your comment regarding "looping" appears to refer to the Terasen Gas alternative, which calls for looping on segments of its existing pipeline. The Terasen Gas alternative was described in Section 2.3 of the Draft SEIS.

Comment 8

The potential impact of liquefaction was not one of the issues identified by Ecology to be addressed in the Draft SEIS. However, the issue of liquefaction was assessed in considerable detail in Section 3.1 of the FERC Final EIS, and Resource Report 6 – Geological Resources.

Comment 9

The primary purpose of the GSX-US pipeline is to supply natural gas to Vancouver Island. However, in the Cherry Point area, a tap valve would be located in the compressor station yard.

Comment 10

Comment noted.

Comment 11

Please refer to revised Section 3.12 – Noise of this Final SEIS. Both of the supplemental reports support the conclusions in the FERC Final EIS that the GSX-US pipeline would not generate sounds of high enough frequencies and intensities to be audible to toothed whales (e.g., orca or harbor porpoise). Based on Ecology’s review of the original and supplemental noise studies and existing noise regulations, and in the absence of other credible research, it cannot conclude that the GSX-US pipeline would result in significant adverse noise impacts to fish or marine mammals.

Comment 12

Comment noted.

Comment 13

The pipeline alignment was established through the FERC process. Therefore, relocation of the project to an alternate location would require FERC approval. Negotiations between individuals and the applicant regarding payment for easements or damages are beyond the scope of the Draft SEIS.

Comment 14

As reported on page 3-97 of the FERC Final EIS, “To further assess the presence of bald eagles in the project area, GSX-US committed to conducting additional surveys during the winter and spring prior to construction.” Conducting the surveys in the seasons prior to construction will ensure that the most recent data are available for development of the mitigation plans as required in FERC Condition 26. Therefore, those supplemental surveys will not be conducted until after the SEPA process is concluded.

Potential impacts of construction and operation of the project were assessed on pages 3-97 and 3-98 of the FERC Final EIS, and on page 3-44 of Resource Report 3. That report was used by FERC to develop its discussion of impacts and mitigation in the Final EIS. The stipulations of FERC Condition 26 (which were also included in the Final EIS), ensure that mitigation will be fully evaluated and approved by the appropriate regulatory agencies.

Section 3.5.9 of the Draft SEIS summarized the Bald Eagle Management Plan prepared by WDFW and cites USFWS concurrence that the project may affect, but is not likely to adversely affect, bald eagles.

Comment 15

The proposed crossing method for Tarte Creek was developed in consultation with biologists from WDFW familiar with the fisheries resource of the stream. The USFWS and NOAA Fisheries have provided concurrence letters based on the proposed crossing method.

Comment 16

The valuation of property by Whatcom County for tax purposes is outside the scope of the Draft SEIS.

Comment 17

In Section 3.7, the Draft SEIS acknowledges the project's location within the Cherry Point Urban Growth Area (UGA).

Comment 18

See Letter IND-11, Comment 5.

Comment 19

Comment noted.

Comment 20

Please refer to Letter IND-5, Comment 2.

Comment 21

Comment noted. Potential impacts, and mitigation measures, related to Terrell Creek were addressed in Section 3.3.8 of the Draft SEIS.

Comment 22

Comment noted.

3584 Birch Bay Lynden Road
Custer, WA 98240

March 11, 2002

Federal Energy Regulatory Commission
888 First Street NE Room 1A
Washington DC, 20426

RE: Georgia Strait Crossing Project

To Whom It May Concern:

I write to convey the value of my property at 3584 Birch Bay Lynden Road, Custer. The Williams Gas Company plans to run a portion of the Georgia Strait Crossing Pipeline through my property, which will destroy the property value.

I have an Associates Degree in horticulture and have been in the nursery and landscaping business for thirty years. I have a deep understanding of the monetary and aesthetic value of plants and trees. I also have experience in the value of lumber, as my father (co-owner of above-mentioned property) and myself, have also worked in the timber industry.

I purchased my ten-acre parcel in 1985. At that time it was 95% natural timber. My ex-wife and I saw this land as a god-created park that we hesitated to destroy for personal gain. However, financially we could not afford a ten-acre park. In order to justify our investment we decided to consider this land an overgrown landscape that we were hired to bring under control. First, we considered existing natural windbreaks and left them on all four sides. Next, we cleared the center, leaving mature trees. Finally, we refurbished an existing pond, leaving mature trees around it.

Williams Gas Company intends to pay me the timber value of the trees they wish to destroy. However, my price is not the value of the trees as timber, but the actual value of the trees in relation to their purpose in the landscape. If the pipeline were installed, the natural windbreaks we secured will be destroyed, leaving mature trees vulnerable to high winds. Therefore, removing just a few trees effects the value of every tree on the property, as well as the entire property value.

If Williams Gas Company chooses to destroy my property the price will be much greater than they anticipate. It is in everyone's best interest for an alternate route to be used.

Sincerely,

Budd Askew

Budd Askew
BA/tw

cc: Georgia Strait Crossing Project

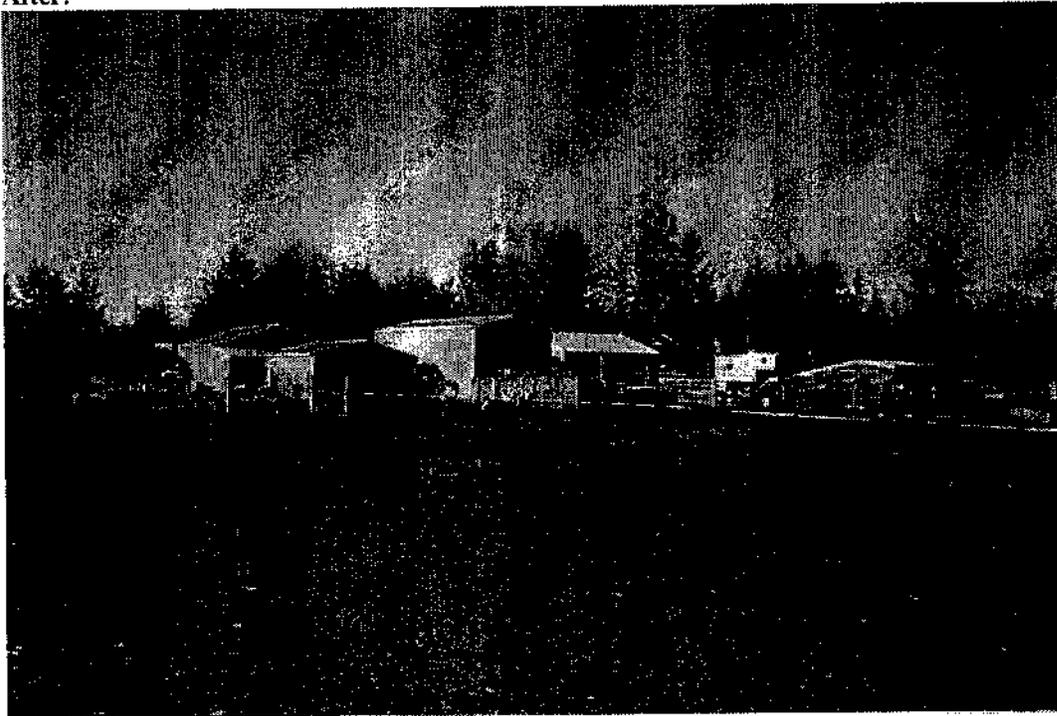
*Received 10/15/03
Bellingham Public Hearing
Bew Preston - Hearing Officer*

Testimony –
Budd Askew
Bellingham Public Hearing
October 15, 2003
Bev Poston – Hearing Officer

Before:



After:



Subject: FW: G.S.X. project
 Date: Wed, 22 Oct 2003 12:46:23 -0700
 From: "Hosner, Sheila" <SHOS461@ECY.WA.GOV>
 To: "Richard Butler (rbutler@shap.com)" <rbutler@shap.com>,
 "Wenger, Barry" <BWEN461@ECY.WA.GOV>,
 "McFarland, Brenden" <bmc461@ECY.WA.GOV>,
 "Powell, Tim L" <Tim.L.Powell@Williams.com>

Comment letter

-----Original Message-----

From: v-twinsupermart@inetmail.att.net [mailto:v-twinsupermart@inetmail.att.net]
 Sent: Wednesday, October 22, 2003 12:01 PM
 To: Hosner, Sheila
 Subject: G.S.X. project

To the Dept. of Ecology.

We have been dealing with the Williams co. and FERC. since Jan. 12, 2000. At that time we were advised that they would survey our property for a proposed pipeline unless we asked them not to. We responded that we would rather they didn't and they came on our property and surveyed anyway. Since that time we have aggressively opposed the GSX project.

At public meetings and through correspondence many people including the Whatcom co. council have expressed their opposition to the GSX. The FERC has dismissed all these objections and approved the project. They also have the option of exercising eminent domain.

I think the FERC should exercise it's mandate to serve the citizens of the United States rather than the interests of the oil and gas pipeline companies. It is wrong to take people's land to provide gas to Canada with no benefit to Washington state or Whatcom Co.

I am glad that you understand the damage to our environment that this GSX project would do.

I wish you all the luck in dealing with FERC and the Williams co.

Sincerely,

Alan F. Bell

1

Thursday, October 23, 2003

FW: Georgia Strait Pipeline Project

Subject: FW: Georgia Strait Pipeline Project
 Date: Wed, 22 Oct 2003 12:48:45 -0700
 From: "Hosner, Sheila" <SHOS461@ECY.WA.GOV>
 To: "Richard Butler (rbutler@shap.com)" <rbutler@shap.com>,
 "McFarland, Brenden" <bmc461@ECY.WA.GOV>,
 "Wenger, Barry" <BWEN461@ECY.WA.GOV>,
 "Powell, Tim L" <Tim.L.Powell@Williams.com>

comment letter

-----Original Message-----

From: v-twinsupermart@inetmail.att.net [mailto:v-twinsupermart@inetmail.att.net]
 Sent: Wednesday, October 22, 2003 12:33 PM
 To: Hosner, Sheila
 Subject: Georgia Strait Pipeline Project

To Dept. of Ecology.

We have 10 acres of woods, we have 6 acres under open space - timberland we have done this so that we will always have trees and a place for the wild life and we wish to pass this on to our kids. Williams Co. want to go right down our road. We have lots of underground springs in our area, the ground moves a lot because of the sand and springs. They also want to cut trees down.

William Co. has not been honest or straight forward on anything they have done or said, how am I to believe that they will be responsible in their pipeline construction.

I feel Canada has already stated that B.C. Hydro find a better way to deliver power to Vancouver Island. So why is Williams Co. pushing this if they have no customers. Greed is Williams Co. motivation at the expense of land owners, wildlife and the land.

I do not want or need this pipeline.

Sincerely,

Kelly L. Bell

1

2

10/28/03 12:54 FAX 425 649 7098

DEPT OF ECOLOGY

002

OCTOBER 21ST 2003

RECEIVED

OCT 24 2003

DEPT OF ECOLOGY

SHEILA HOSNER
DEPARTMENT OF ECOLOGY
3190 - 160TH AVENUE SE
BELLEVUE, WA 98008-5452

~~RE: GSX PIPELINE~~ RE: GSX PIPELINE

DEAR MS. HOSNER,

SOMETIMES ONE MONTH IS NOT ENOUGH TIME FOR A CITIZEN TO ADEQUATELY STUDY A DSEIS AND INTELLIGENTLY RESPOND, SUCH IS MY SITUATION, BUT, PLEASE KNOW THAT MY LACK OF A SUBSTANTIVE RESPONSE (OR EVEN A TYPED ONE) DOES NOT DIMINISH THE SERIOUS CONCERNS I HAVE ABOUT THIS PROJECT. [PLEASE NOTE THAT IN THE LAST MONTH. RESPONSES WERE DUE TO ALSO TO THE BIRCH BAY GROWTH MANAGEMENT SUB-AREA PLAN AND WITHIN A WEEK, COMMENTS ARE DUE ON THE PROPOSED CO-GENERATION PLANT AT CHERRY POINT. NOT TO MENTION THAT I WORK FULL TIME - 11 HOURS A DAY WITH THE COMMUTE BY BUS, AND I WAS OUT OF TOWN TWO WEEKENDS, AND IN TUCSON FIVE DAYS, I THOUGHT I COULD READ THE DOCUMENTS AND WRITE MY CONCERNS LAST WEEKEND, BUT THE RAIN SOAKED THE CARPET IN ONE ROOM AND THAT TOOK PRIORITY OVER THE DSEIS.

SO, WITHOUT READING THE ^{ENTIRE} DSEIS AND COMPARING IT TO THE FERC EIS, I AM CONCERNED ABOUT MANY ISSUES THAT WERE GLOSSED OVER AND INADEQUATELY ADDRESSED, BELOW IS WHAT I CAN RECALL FROM MEMORY.

1. ALTERNATIVES

AT THE ORIGINAL CITIZENS MEETING THAT FERC HELD AT LYNDEN HIGH SCHOOL (THE FIRST TIME I EVEN HEARD ABOUT THE PROJECT, BUT WILLIAMS PIPELINE WAS ALREADY PURCHASING WHATCOM COUNTY PROPERTY FROM UNWILLING FARM OWNERS, SO WE ALL KNEW THIS PROJECT WAS A "DONE DEAL" AND THEY WERE JUST GOING THROUGH THE MOTIONS OF A PUBLIC HEARING) I DO NOT RECALL ANYONE EVEN MENTIONING THAT THERE WAS ALREADY A PIPELINE THAT WENT FROM THE CANADIAN MAINLAND TO VANCOUVER ISLAND. I WAS TOLD THAT THE PIPELINE WAS GOING TO AND THROUGH THE U.S. BECAUSE CANADA WOULDN'T ALLOW ~~TO~~ IT TO GO THROUGH THE SURREY PORTION OF THE LOWER MAINLAND (BECAUSE IT WAS TOO POPULATED). LIKE, BIRCH BAY, A DESIGNED URBAN GROWTH AREA WON'T BECOME POPULATED TERESEN HAS PROPOSED TO INCREASE AND EXPAND

10/28/03 12:55 FAX 425 649 7098

DEPT OF ECOLOGY

4004

SHEILA HOSNER - DOE

-2- GSX

THE FLOW OF NATURAL GAS TO VANCOUVER ISLAND TO ACCOMMODATE THE INCREASED DEMAND, VIA ^{AN} ALREADY EXISTING PIPELINE.

THIS IS A VIABLE

ALTERNATIVE! AND ONE THAT WON'T CAUSE FUTURE HARM TO THE ENVIRONMENT. IT IS MENTIONED, BUT NOT ADDRESSED.

IS THERE A PROBLEM WITH THE ADEQUACY OF TERASEN'S PROPOSAL?

I THOUGHT THE WHOLE PURPOSE OF "DOING" AN EIS ^{LAST TO} ~~LOOK AT~~ ^{AMONG OTHER THINGS} AT ALTERNATIVES, AND IF THERE WAS AN ALTERNATIVE TO RISKING DISTURBING (AND POSSIBLY INJURING IN THE FUTURE) A SENSITIVE ENVIRONMENT, THAT ALTERNATIVE WOULD BE THE PATH TAKEN.

SO, WHY DO WE HAVE TO PUT A SECOND PIPELINE ACROSS A SENSITIVE AND UNIQUE ESTUARY? (THE 2ND LARGEST ESTUARY IN THE U.S.!))

WHY ARE WE GIVEN NO REASON(S) OTHER THAN PROFIT FOR WILLIAMS PIPELINE, FOR INSTALLING A PIPELINE FROM CHERRY POINT TO

2

THIS POTENTIAL DISASTER OFFERS NO BENEFIT JUSTIFYING THE IRREPARABLE DAMAGE TO SHELLFISH BEDS, MARINE LIFE, FRAGILE MARINE ECOSYSTEMS, AND PRECIOUS NATURAL RESOURCES.

3

VANCOUVER ISLAND? ←

I THINK THE CITIZENS SHOULD SEE THE JUSTIFICATION FOR WHY THE TERASEN PIPELINE IS NOT ADEQUATE, OR WHY THEIR PROPOSAL IS NOT ADEQUATE. THE TERASEN PIPELINE DOES NOT CROSS ANY MARINE SHORELINE.

LONG ISLAND SOUND, BETWEEN CONNECTICUT AND LONG ISLAND, NEW YORK, ALSO WAS SUBJECT TO MULTIPLE NATURAL GAS LINES AND THE PROLIFERATION OF ENERGY TRANSMISSION PROJECTS, AND A FERRE EIS. THAT PROPOSED PIPELINE SUFFERED A SETBACK BECAUSE THE STATE (CT) DEPARTMENT OF ENVIRONMENTAL PROTECTION RULED YET AGAIN THAT THE PROJECT CLASHES WITH A KEY FEDERAL ENVIRONMENTAL LAW: THE COASTAL ZONE MANAGEMENT ACT, WHICH IS SUPPOSED TO PROTECT ENVIRONMENTALLY SENSITIVE COASTAL REGIONS (LIKE ESTUARIES WITH LOTS OF ISLANDS) AND EFFECTIVELY GIVE VETO POWER OVER PROJECTS AFFECTING SUCH AREAS.

4

HAS ANYONE LOOKED INTO THIS?

* P. WHY DOESN'T THE COASTAL ZONE MANAGEMENT ACT APPLY ^{HERE} THERE IS NO MENTION OF THE CHERRY POINT AREA RECENTLY BEING DESIGNATED AS AN AQUATIC RESERVE AND ANY NEW REQUIREMENTS THAT IMPOSE BE ON POTENTIAL DEVELOPMENT AND INDUSTRY, OR EVEN LEGAL

10/28/03 12:55 FAX 425 649 7098

DEPT OF ECOLOGY

0000

SHEILA HOSMER - DOE

-3- GSX

REQUIREMENTS, IF THERE ARE NOT ANY MINERAL RIGHTS TO A LAND PARCEL, TO WHAT DEPTH DOES THE AQUATIC RESERVE NOW ~~OWN~~ THE SHORELINE AND DO THEY NOW HAVE JURISDICTION TO SAY WHAT CAN OR CANNOT GO UNDER THEIR RESERVE AND WHAT DOES OR DOES NOT AFFECT THEIR RESERVE? THESE ISSUES MUST BE ADDRESSED BEFORE ANY PIPELINE IS APPROVED, THIS APPLICATION CANNOT BE "GRANDFATHERED" IN BECAUSE IT WOULD THEN CIRCUMVENT THE PURPOSE AND INTENT OF THE AQUATIC RESERVE DESIGNATION. A NEW PERMIT MUST BE ACQUIRED TO TRESPASS OVER, UNDER, OR THROUGH THE AQUATIC RESERVE. ONE THAT MEETS ANY AND ALL DNR REQUIREMENTS. DEPARTMENT OF ECOLOGY, PLEASE DO YOUR JOB, AND MAKE SURE THIS IS ADDRESSED BY AND THROUGH THE AUTHORITIES WHO ARE THE "CARETAKERS" OF THE RESERVE. (DNR - DOUG ROBERTS?) ^{WASHINGTON} SOMEONE SAID SOMETHING ABOUT A SCOPING MEETING ON OCT. 22ND BUT THE PUBLIC WASN'T INVITED TO ~~GO~~ HEAR WHAT'S GOING ON AT THAT MEETING. AND WHERE IS IT?

THERE ARE SO MANY OTHER ISSUES THAT I DON'T HAVE TIME TO →

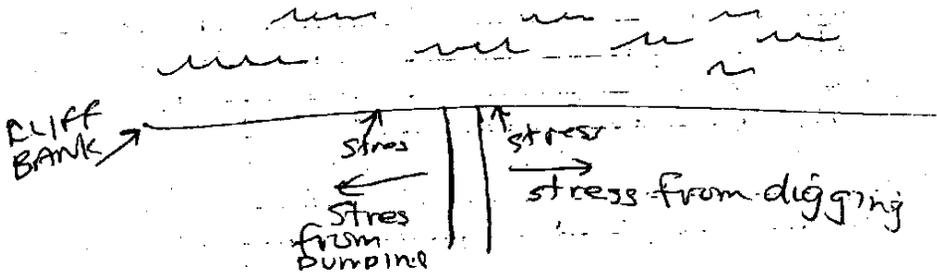
5

ADDRESS, SUCH AS THE SOIL COMPOSITION OF THE BLUFF AT CHERRY POINTS IS IT CLAY OR SAND?

IF THE DRILL DOWN UNDER IT HOW DOES THAT AFFECT THE ENTIRE STABILITY OF THE BLUFF.

AT BIRCH BAY THE NEIGHBOR BELOW ME ONLY CUT THE BLUFF AT THE PROPERTY LINE - A STRAIGHT LINE. IT CAUSED A CAVE-IN ON MY PROPERTY AT THE PROPERTY LINE, WHICH CAUSED A 3 PROPERTY WIDE STRESS CRACK, DEPTH UNKNOWN IS ABOVE ORIGINAL CAVE-IN LATER, NEIGHBOR'S PROPERTY CAVED IN 25' DEEP, IN A "V" SHAPE.

IF THEY DRILL DOWN TO INSERT THE PIPELINE, HOW WILL THAT AFFECT SPLITTING, STRESSING, CAVING IN, AND FURTHER DETERIORATION OF THE BLUFF? ANY TRUE STUDIES?



10/28/03 12:56 FAX 425 649 7088

DEPT OF ECOLOGY

0000

SHEILA HOSNER - DUE

-4- GSX

2. NOISEFROM THE POINT
CHERRY POINT
INDUSTRIAL AREA

THE AREA THAT EXPERIENCES THE MOST NOISE IS THE COTTONWOOD BEACH AREA OF BIRCH BAY.

THERE HAVE BEEN NO NOISE MONITERS PLACED IN THAT AREA, NOR HAS THERE BEEN ACCURATE MODELING.

(1) MODELING IS DONE IN DRY, ARTIFICIAL "LABS" OR BOXES. NOISE FROM THE SITE AREA AT CHERRY POINT CROSSES OVER WATER. NOISE TRAVELS A LOT CLEARER AND LOUDER ~~AND~~ AND FARTHER ACROSS WATER AND ESPECIALLY ON CLEAR SUMMER EVENINGS WHEN THE AIR IS DAMP - ONE CAN HEAR A MOTORCYCLE MAKE ALL ITS SHIFTS TO + FROM STOPS SIGNS ALMOST INTO BLAINE ON DAMP SUMMER EVENING - I HAVE TESTED THIS IN THE WINTER.

(2) SCIENCE FOR TESTING IS BOGUS. I WAS TOLD THAT ~~SO~~ SINCE THE PUMP THAT WOULD BE SUCKING THE GAS DOWN FROM BRITISH COLUMBIA (BY THE WAY, WHY WASN'T THE ALTERNATIVE DISCUSSED ABOUT PUMPING IT DOWN FROM B.C.?)

WAS NOT LOUDER IN DECIBALS ~~IN~~
 IN ~~OF~~ NOISE THAN WHAT THE REFINERY
 IS ALREADY PRODUCING OR EMITTING,
 THEREFORE, IT EQUALS NO INCREASE IN
 NOISE. I GUESS THEY ARE
 SUGGESTING THAT NOISE CANNOT
 BE CUMMULATIVE; IN EFFECT,

NOISE A + NOISE B = NOISE A

WERE WE GIVEN ANY TRUE
 SCIENTIFIC TESTS THAT SHOW THIS?
 IS TRU

THIS IS ONE OF MANY OF THEIR
 MODELING SCHEMES THAT IS
 INACURATE, UNSUBSTANTIATED, AND
 NOT SCIENTIFICALLY FACTUAL.

IN FACT MANY, IF NOT ALL, OF THEIR
 MODELING IS SUSPECT, OR ESTIMATED
LOW.

NO SANCTIONS ARE MENTIONED FOR
 WILLIAMS ~~B~~ IF THE REALITY OF
 THEIR PIPELINE GOES OVER ANY,
 OR EVEN ALL, THEIR "PROJECTIONS"

THIS NOISE THEORY IS PREPOSTEROUS!
 NOISE INCREASES IN A ROOM IF
 MORE THAN ONE PERSON SPEAKS
 IN A LOW CONVERSATIONAL TONE OR
 VOICE, TWO PEOPLE TALKING IS LOUDER
 THAN ONE, NOISE DOESN'T ABSORB NOISE

8
 cont.

10/28/03 12:57 FAX 425 649 7098
SHEILA HOSNER - DOE
GSX

DEPT OF ECOLOGY

REPLY

-5-

WHO DETERMINED THAT THE NOISE WOULD NOT IMPACT MARINE ANIMALS?

ANY ACTUAL STUDIES?

WITH ALL THE NEW + RECENT DATA ON SONAR ~~TESTING~~ ^{AFFECTING} WHALES, HAS ANYONE BEEN ABLE TO PROVE THAT ^{THE NOISE FROM} THE CONSTANT DREDGING HOUR AFTER HOUR, DAY AFTER DAY, DOESN'T INTERFERE OR AFFECT THE COMMUNICATION SYSTEM BETWEEN WHALES? OR AT LEAST IMPAIR THEIR ABILITY TO HEAR SONAR IMPULSES?

IF NOT, WHY SHOULD OUR ^{PUGET SOUND} WHALES BE GUINEA PIGS FOR AN UNNECESSARY PIPELINE? WE ALREADY HAVE WHALES BEACHING THEMSELVES, AREN'T THE WHALES SUPPOSED TO BE PROTECTED?

I DEMAND TO SEE CLEAR AND CONVINCING EVIDENCE, OTHERWISE WE MUST GO WITH TERASEN'S PROPOSAL.

AFTER HEARING ALL THE TESTIMONY AT THE FIRST FERC HEARING (THE EXPERT MARINE WITNESSES,

9

* ~~AND~~ AND THE HORRIBLE WAY U.S. CITIZENS HAVE BEEN TREATED BY WILLIAMS EMPLOYEES TRYING TO COERCE THEIR PROPERTY FROM THEM; AND THE FACT THAT THERE IS NOT A SINGLE BENEFIT FOR THE U.S. (A FEW JOBS) AND CANADA DOESN'T WANT A CO-GEN ^{PLANT}

→ THE WU HUXLEY COLLEGE PROFESSOR WHO SAID FERC'S EIS WOULD NOT EVEN GET A PASSING GRADE IN HER CLASS!!!) * AND KNOWING THAT THE TERASEN PROPOSAL IS A VIABLE ALTERNATIVE, AN HAVING WORKED FOR THE U.S. DEPT. OF JUSTICE ON THE EXXON VALDEZ DISASTER, THE WILLIAMS PIPELINE PROPOSAL IS

UNCONSCIOUSNABLE!

I DO NOT HAVE ANYMORE TIME TO RESEARCH THIS MATTER OR EVEN CITE STUDIES I HAVE BURIED IN PAPER-WORK AT HOME.

WE MUST CHOSE THE LEAST ENVIRONMENTALLY DAMAGING ALTERNATIVE, WHICH IS TERASEN'S PROPOSAL.

PLEASE READ THE ENCLOSED LETTER FROM THE COMMISSIONER OF THE CONNECTICUT'S DEPARTMENT OF ENVIRONMENTAL PROTECTION IT RAISES ISSUES THAT ARE SIMILAR TO THE GSX PIPELINE. PLEASE ENTER THE LETTER WITH MY/AND AS MY COMMENTS. I WISH I HAD MORE TIME.

PROTECT OUR BEAUTIFUL AREA!

SINCERELY, Cathy Cleveland
CATHY CLEVELAND

DI HABI MURGA
BLAINE, WA

ENCLOSURE

4

October 25, 2003

Sheila Hosner
WA State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

Dear Ms. Hosner:

Thank you for this opportunity to comment on the Department of Ecology DSEIS for the Georgia Strait Crossing Project. We are writing as concerned citizens living in the Point Whitehorn neighborhood, Birch Bay, Washington. We believe that the GSX Project must be rejected due to environmental, safety, and economic considerations.

The key question is—is this pipeline really needed? If the answer is “no”, then there is no logical reason to proceed assessing rigorously its presumed impacts however adverse or benign.

Ostensibly, this pipeline is not being constructed to serve local, regional, or national U.S. energy needs. At issue then is whether Vancouver Island’s energy needs can be satisfied without the construction of a project that will doubtless impact both the marine and wetlands resources of Whatcom County.

As the document observes, more cost-effective alternatives than the proposed GSX project exist for meeting Vancouver Island’s presumed need for a reliable source of natural gas. Yet, there is no quantitative—or qualitative- discussion of market demand on Vancouver Island. Without this documentation, there is no justifiable reason to build a new pipeline.

The DSEIS outlines the potential for the Terasen alternative, which is clearly an environmentally superior alternative. However, nowhere in the document, does the DSEIS declare that the Terasen alternative is superior.

1

2

The Terasen pipeline proposal appears to be preferable to the GSX proposal for the following reasons:

- The pipeline corridor already exists, and it exists within Canada, the place from which and to which the natural gas will be delivered. Because the pipeline corridor already exists, we can expect that impacts to sensitive habitat will be minimal.
- Only 45.7 miles of pipe will need to be laid in total and these will be twinned. In the GSX proposal, 84.5 miles of pipeline will need to be newly routed.
- No new marine pipeline work would be needed, whereas, 41 miles of pipeline will be laid down in the GSX proposal.
- Terasen's existing pipeline corridor has already been sited based on geotechnical, environmental, land use, and property ownership considerations, that are consistent with current route selection techniques.
- Terasen's expansion will require approximately 40 acres, for its 3 compressor stations and liquid natural gas facility (LNG), and an additional 300 acre protective buffer around the LNG, that presumably would be left natural.

By contrast, the GSX-US portion will disturb 588.7 acres of land, of which 227.9 acres will be required for permanent operation of the facility. In the US marine portion, 47.4 acres will be disturbed and 20.2 of these will be permanently used for operation of the pipeline. Compared to the Terasen proposal, the amount of land and marine habitat that will be disturbed by the GSX proposal is extraordinary.

The general environmental concerns and impacts — both potential and likely — of construction of the GSX project include habitat disruption and loss, wildlife displacement, stream crossings,

and erosion. The majority of these effects are thought to be of a temporary nature if planned right and stringent reclamation and construction techniques are employed. The proponent plans to perform the construction for the project in the least damaging season and to mitigate for some of these costs.

However, recent litigation shows us that we should remain less than sanguine in this regard. For example, throughout the late 1990s, the State of New Hampshire fined the Bechtel Corporation and the Portland Natural Gas Transmission System (PNGTS) repeatedly for violating the State's wetlands and water quality laws during construction of a natural gas pipeline. During construction, State inspectors discovered many violations of state environmental laws and permit conditions, mostly involving the discharge of sediment into streams and wetlands. Sedimentation and turbidity impair water quality and can damage fish and wildlife habitat as well as wetlands vegetation—environmental consideration essential to salmon restoration.

The New Hampshire Department of Environmental Services Commissioner Robert Varney, who as chairman of the state Energy Facility Site Evaluation Committee presided over the permitting hearing for the pipeline project, noted that, "The PNGTS pipeline project had the potential to cause massive harm to the environment. Due in large part to the efforts and vigilance of the DES in imposing conditions, conducting inspections, and assessing administrative fines, the pipeline was built without major long-term environmental impacts. While it is unfortunately true that some environmental problems did occur, today's settlement will provide an ongoing benefit to wetlands protection and land conservation in northern New Hampshire."

Whatcom County citizens, for example, as volunteers with the Nooksack Salmon Enhancement Association have worked hard years to protect and, where possible, to enhance Terrell Creek as salmon restoration habitat. Pipeline construction could affect the quality of surface waters through clearing and grading of stream banks, in-stream trench dewatering, and backfilling. These activities can result in increased turbidity, increased sedimentation, decreased dissolved oxygen and stream warming. Disturbance of contaminated soil and sediments could result in adverse impacts to water quality and in-stream habitat. Operation of heavy equipment or other vehicles in and near surface waterbodies could also introduce chemical contaminants such as

fuels and lubricants into surface waters during construction.

Do we want this litigious situation to repeat itself in Washington State for a project that for its originally intended purpose is not justified by generally accepted principles of cost-benefit analysis? Who will be financially responsible for the pre- and post-construction adverse environmental impacts of this project should they occur?

Moreover, the proposed route of the pipeline presumes that Birch Bay will remain primarily less developed open space. This argument is fallacious on two accounts. First, it fails to recognize that the project abuts the Birch Bay Urban Growth Area designated under Whatcom County's Comprehensive Plan. The projected urbanization of this area over the next 20 years, contiguous to the pipeline's corridor increases the potential adverse consequences of a pipeline accident if one were to occur.

3

Second, the pipeline is not the only proposed industrial footprint with a potential environmental impact on the Birch Bay Urban Growth Area and its present and future citizens. The synergistic and cumulative environmental impacts of pipeline construction and the building of a 720 MegaWatt power plant on the site of the BP Refinery at Cherry Point on citizens living in the Birch Bay UGA have not been considered in the EIS.

4

In conclusion, the construction of the GSX pipeline project would cause undue disruption to the Georgia Straits environment. The marine resources which this project will impact are important not only to the citizens of Whatcom County but also to all residents of Washington State and British Columbia who make use of these aquatic areas. On October 22, 2003 the Washington State Department of Natural Resources issued a scoping notice for a Supplemental Environmental Impact Statement (SEIS) process under the State Environmental Protection Act (SEPA) addressing the newly designated Cherry Point aquatic reserve. The proposed pipeline will transect the Cherry Point Reserve.

5

While FERC may not be bound by the State's actions in this regard, the will of the people of Washington State should be respected. We deserve an element of self-determination around a valuable and irreplaceable resource. Despite the fact that FERC has federal preemptive powers

6

over the state on pipelines I would ask that you represent the State's sincere effort to protect its charge and work to create a plan for minimizing industrial impacts on Cherry Point's aquatic and inland resources.

6

Finally, I return to my initial argument, there are economically viable alternatives available to supply Vancouver Island with natural gas. Reliable supplies of natural gas can meet Vancouver Island's needs without disturbing the Georgia Straits sea bed.

The GSX project is an unwarranted and unwise intrusion into the Georgia Straits and should be rejected. FERC should honor the state's position and grant no further approvals until such time as the state returns with its plan to manage the Cherry Point Aquatic Reserve through its SEPA process. The citizens of Whatcom County and Washington State derive at best minimal economic benefit from this project. I fail to see how these benefits outweigh the potential risks of this project.

Sincerely,

Alan and Eliana Friedlob
6934 Holeman Avenue
Blaine, WA 98230

10/28/03 13:17 FAX 425 649 7098

DEPT OF ECOLOGY

036

October 22, 2003

Darrell L. & Blanche Glenman
2330 Jess Road
Custer, WA 98240

RECEIVED
OCT 27 2003
DEPT OF ECOLOGY

Washington State Department Of Ecology
Attn: Sheila Hosner
3190 160th Avenue S.E.
Bellevue, WA 98008-5452

Dear Madam:

My husband and I own twenty acres at 2330 Jess Road, Custer, WA. He is 67 and has lived here all of his life farming this land.

The south fork of the Dakota Creek runs through the middle of our property and since this is prime farmland, we are very concerned about the impact of the potential pipeline on the land and the habitat of the fish.

Nearly ten years ago we were one of the first landowners to have the Salmon Enhancement Program work with our property- cleaning out the creek and planting trees to protect the salmon, hoping someday it will return as it was when my husband was growing up.

The pipeline will go through a deep ravine on our property with a spring that runs to the creek, which we are also concerned about.

1

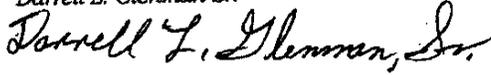
Also, a few weeks after we were approached about the pipeline, surveyors were on our property, staking it without our permission. I called the main representative of Williams at the time (Rex) and he apologized on the recorder saying it was the surveyor's fault. We are very concerned about the integrity of the pipeline people and what they represent.

2

Thank you,

Sincerely,

Darrell L. Glenman Sr.



Blanche M. Glenman



95 Meadow Lane
Friday Harbor, WA 98250-8484
October 15, 2003

RECEIVED

OCT 16 2003

Ms. Shiela Hosner
Department of Ecology
3190 160th Ave. SE
Bellevue, WA 98008-5452

DEPT OF ECOLOGY

Subject: Public Comment on GSX-US Pipeline

Dear Ms. Hosner:

Please accept this letter as my public comment on the Williams Gas Pipeline Co. and BC Hydro Gas Pipeline Project SEIS prepared by the Washington State Department of Ecology as presented at a public meeting held in Friday Harbor on October 14, 2003.

Let me begin by briefly outlining my basis for comment. I hold an earned Ph.D. in Fishery Biology with over 40 years experience in fishery science and marine ecology in both Alaska and the Pacific Northwest. I am currently serving as the Lead Entity Coordinator for Water Resource Inventory Area 2 as part of a state-wide wild salmon recovery program under the auspices of the Salmon Recovery Funding Board established in 1998 by the Washington State Legislature passing ESHB 2496. I also serve on the San Juan County Marine Resources Committee.

My primary objection to the SEIS and all other documents pertaining to the pipeline is the lack of a thorough examination of the effects of anthropogenic sounds on fishes related to the construction and operation of the proposed pipeline. In most cases, the sounds produced by humans are relatively low in frequency, with the bulk of the energy below 1,000 Hz. Thus, these sounds are within the hearing range of fishes and so have the potential to affect fish as well as marine mammals. Essentially, all fishes are able to detect sounds within the frequency range of the most widely occurring anthropogenic sounds.

Because fishes live in a naturally "noisy" environment and because they have probably evolved to gain environmental information for this noise, anything that hampers their ability to detect biologically relevant signals will have a potentially deleterious effect on their survival and thus the health of fish populations. For example, responses to sound could affect behavior extensively and result in the fish leaving a feeding ground or an area in which it would normally reproduce or in some other way affect long-term behavior and subsequent survival and reproduction. Another behavioral effect might occur if the increased ambient noise prevented fish from hearing biologically relevant sounds. This interference, called masking, is a consequence of noises being in the same frequency range as communication of other biologically relevant sounds.

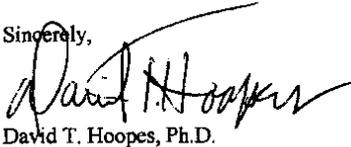
Hosner Letter
October 15, 2003
Page 2

While it is hard to predict the consequences of changes in stress levels on fish, a temporary loss of hearing could mean that a fish loses some ability to detect predators or prey, communicate acoustically, and/or determine the structure of the acoustic environment. Clearly such effects would alter the survival of a fish.

Longer-term effects are also possible. Because the sensory cells of fishes are virtually the same as found in terrestrial vertebrates, it is likely that exposure to loud sounds might permanently deafen fish and, again, decrease their chances of survival. Although we most often think in terms of very loud sounds as having the most potential effect on animals, including humans, it is well documented that longer exposures to any anthropogenic sounds may also affect the health and well-being of a human or other animal. Thus, we need to be concerned about the effect on fish under long-term exposure to sounds that are significantly above the normal ambient acoustic environment in which they evolved, such as the sound made by gas at 2,000+ p.s.i. rushing through a pipeline. If nothing else, it will be important to ask the right questions to determine if the effects are present and important or if they have little or no long-term consequence to the organism. To date, such questions have not been adequately answered in any document describing the potential impacts of the proposed pipeline.

Thank you for allowing me to express my serious concerns regarding the proposed action.

Sincerely,



David T. Hoopes, Ph.D.

Email address: <leadentity@rockisland.com>

Wednesday, October 29, 2003

FW: Comments on DSEIS for the Georgia Strait
Crossing Pipeline (G SX)

Page: 1

Subject: FW: Comments on DSEIS for the Georgia Strait Crossing Pipeline (G SX)

Date: Tue, 28 Oct 2003 11:23:14 -0800

From: "Hosner, Sheila" <SHOS461@ECY.WA.GOV>

To: "Richard Butler (rbutler@shap.com)" <rbutler@shap.com>

GSX Comment

-----Original Message-----

From: Michael Kyte [mailto:m.kyte@comcast.net]

Sent: Wednesday, October 08, 2003 6:42 PM

To: Hosner, Sheila

Subject: Comments on DSEIS for the Georgia Strait Crossing Pipeline (GSX)

Dear Ms Hosner,

Thank you for sending the Draft Supplemental Environmental Impact Statement for the proposed Georgia Strait Crossing natural gas pipeline. While reviewing the DSEIS, I noticed a few errors and matters on which I want to comment. My comments follow:

1. In general, the document states that the proposed pipeline will cross at Cherry Point. This is not true; the mapped Cherry Point is nearly 2 miles south of the proposed crossing point with the BP Cherry Point Refinery terminal in between. This geographic misdirection is confusing and misleading, especially when impacts to the shoreline and nearshore marine environment are being considered. This is especially true since a number of other developments are proposed and planned for the "Cherry Point" area. This document has all these developments occurring on the same piece of beach and upland.
2. It should be noted that I have quantitative vertical aerial photos taken in 1988, 1992, 1996, and 2000 of the proposed project site, both the Gulf Road and pipeline crossing locations. These full color photos were taken at a scale of 1 inch equals 400 feet during summer low tides and clearly show beach substrate and vegetation. In addition, I conduct qualitative walking surveys each year during summer low tides from Point Whitehorn to Neptune Beach. Finally, I maintain a comprehensive and up-to-date annotated bibliography with nearly 300 titles and a library of literature, both published and unpublished (e.g., scientific journal articles and consultant reports, respectively). Several reports cited in the bibliography and in the library contain site specific (Cherry Point) information on bottom fish, Dungeness crab, benthic communities, vegetation, etc. To the best of my knowledge, GSX-US has not accessed any of these resources.
3. Figure 2-2 HDD Pipe String Launch Plan. #3 (under HDD Pipe String Launch Plan) states: "(This is Entirely A Rock Beach Area. There Is No Vegetation)"

Comment: The statement in parentheses is not true. The beach at the Gulf Road launch site is not a rock beach area. It is characterized by a covering of cobble and gravel in the upper intertidal zone grading with decreasing elevation into sandy gravel and silty sand. In addition, there is abundant vegetation in the form of marine macroalgae attached to the intertidal zone substrate and a seasonal kelp bed offshore. In addition, eelgrass (*Zostera* spp.) is present in small patches, most notably in a sand-filled depression near the existing abandoned gravel-loading pier.

4. Section 3.5.8 Issue 7. Impacts to marine vegetation.

Comment: Since I do not have a copy of the FERC Final EIS or its supporting documents (i.e., Appendix 3-1 of

Resource Report 3) I cannot assess the veracity of the information on which this section is based. However, if Figure 2-2 (see my comment #3) is an indication, the report is not accurate in its description of the affected environment. For instance, I have direct personal observations and credible site specific information that show that eelgrass and abundant macroalgae are present at the Gulf Road location. Because of the sensitivity of the beach substrate, a major disturbance will cause scars and disruption of the substrate's structure that could be present for years and spread to affect a much larger area. Please note that the beach intertidal substrate at the Gulf Road location is a cobble armor which when disrupted will expose gravel - sand matrix that would be easily eroded.

4

In contrast, it is highly unlikely that any viable vegetation would be present at the location of the exit hole located at -130 feet mean lower low water. Thus, vegetation should not be an issue at the pipeline burial location.

5. Section 3.7. Land and Shoreline Use.

Comment: I did not find any mention of the Cherry Point Aquatic Reserve in this section or the document in general. Since the Reserve was recently re-nominated, and it appears that it will be confirmed, the relationship of the proposed pipeline crossing with the Reserve should be discussed.

5

Please feel free to contact me if you have any questions or need additional information on my comments.

Thank you for this opportunity to comment on this project.

Regards,

Michael Kyte
Marine Biologist
1233 NW 119th Street
Seattle, WA 98177
Voice: 206.910.4617
Email: m.kyte@comcast.com

861 Cherry Point Road
RR3 Cobble Hill, BC Canada V0R 1L0

25 October 2003

By email: shosner@ecy.wa.gov

Ms. Sheila Hosner
Department of Ecology
3190 - 160th Avenue, S.S.E.
Bellevue, Washington, 98008-5452

Dear Ms. Hosner

Re: GSX Project - Draft Supplemental EIS

I have reviewed this document from the perspective of an intervenor in the reviews of both the GSX Canada project and the associated Vancouver Island Generation project (VIGP) on which GSX's viability rests. I was dismayed to see that the shortcomings of the US application (which this report attempts to rectify) mirror those of the Canadian application, which I have strenuously opposed.

There is an important oversight in the summary provided in the Supplemental EIS, in that the key conclusions of the BC Utilities Commission (BCUC) which have the most bearing on the necessity of the GSX pipeline have not been included in this report. The question of a project's actual necessity must be the key factor when assessing the environmental impacts and whether they are justified. Clearly, if a project cannot be shown to be necessary, any adverse environmental impacts are not justified.

The underlying need that would be met by both the GSX and VIGP projects is the demand for electricity on Vancouver Island. However this is not prompted by new demand, but by a planning and reliability issue related to BC Hydro's decision to zero rate the HDVC cables from the mainland in 2007, thereby discounting 240 MW of existing capacity.

The National Energy Board's conclusions that the impacts of GSX Canada are not significant are summarised in your report but this does not reflect the fact that the Joint Review Panel:

- a) excluded consideration of almost all alternatives brought forward to them by intervenors, on the grounds that they were not alternative pipeline projects;
- b) discounted much of the local concern regarding the adverse air quality impacts of VIGP, which could still go ahead if GSX is approved, because it was not the project directly under consideration;
- c) refused to admit evidence about the alternative Terasen project which came forward at the later BCUC hearing, even though this directly contradicted the proponent's evidence on the cost effectiveness of Terasen expansion as an alternative to GSX Canada.

Their finding that the expected impacts of GSX are acceptable reflects the fact that the Joint Review Panel adopted the proponent's position that it is just an inert pipeline project. They refused to consider evidence on alternatives to VIGP, the proponent's justification for GSX, and the source of major new pollution, a direct consequence of GSX.

They thereby denied the public's request for consideration of alternatives to resolve the true difficulty, a planning shortfall in electrical capacity on Vancouver Island. One alternative they did not consider has been acknowledged by the BCUC as being possibly a better solution than GSX/VIGP, namely the 230 kV cables. A footnote in their report by Panel member Mr Williams acknowledges that the failure to consider this alternative is a matter of concern.

Hundreds of local residents attended meetings prior to the formal hearings to let the Joint Review Panel from the National Energy Board hear their deep concerns -- about the pollution that would result from VIGP; the avoidable environmental damage which would be caused if they approved GSX; the heightened risk to various endangered species, terrestrial and marine; the risks which construction posed to the local underground water table and wells; the safety hazards posed to local residents by a large gas pipeline monitored from Salt Lake City, Utah -- and express adamant opposition to this proposal. These concerns were carefully documented by the Panel and then disregarded in their final conclusion.

3

The primary justification for the construction of the GSX project is the VIGP project for which BC Hydro has also applied through a subsidiary company. As the parent company of both Canadian project applicants, BC Hydro has stated that without VIGP, GSX will not proceed, and told the review Panel that it was willing to have a CPCN for GSX contingent on approval for VIGP. VIGP is currently in abeyance as a result of the conclusions reached by the BCUC when they recently refused to grant a Certificate of Public Convenience and Necessity.

BC Hydro prefers to have GSX and VIGP rather than build new transmission cables. However the BCUC found that the applicant had not proven that GSX/VIGP was the most cost-effective solution for Vancouver Island, and directed them to conduct a call for tenders to explore other options. There is now to be a call for tenders for alternative projects, with the possibility that VIGP will be reapplied for next Spring if competing projects cannot be shown to be more cost-effective.

Norske Canada, the largest industrial electricity customer on Vancouver Island, also opposes BC Hydro's solution. Norske have offered to assist BC Hydro by load shifting and/or increased electricity generation, thereby mitigating concerns that the existing infrastructure might not be able to meet peak demand after de-rating of the HDVC cables in 2007.

4

An important conclusion of the BCUC review is that the replacement of the present cable system by means of a 230 kV cable system with (ultimately) 1200 MW of transmission capacity may be the best way forward if no on-island generation can be found which is more cost-effective. This alternative was supported by many intervenors, and was conceded by BC Hydro to be a technically superior solution because of greater system stability (in the context of electrical frequency) and an improved result for future "Expected Energy Not Served".

BC Hydro anticipates having to add a 230 kV cable later even if GSX and VIGP are built, whereas the present 230 kV alternative would not require GSX or VIGP afterwards. Since the competing project costs as currently planned are directly comparable, it would seem to make more sense to proceed with the 230 kV option than proceed with a more environmentally damaging alternative which will require future cable construction in any case. However BC Hydro appear determined to pursue GSX and VIGP instead of the cables

5

alternative, despite the fact that it was originally preferred as a solution: 'until we lost time, we lost the value of time, our position was transmission.'¹

An important advantage of the 230 kV alternative is that it would use an existing right of way and thus can be expected to have a lesser environmental impact, while obviating the many consequences of GSX and VIGP. The hearing process has prompted many companies to come forward with alternatives, but the proponent of VIGP and GSX will be assessing these, which prompted such concern that a third party has been appointed as overseer.

It is clear that so long as GSX remains a possibility, BC Hydro will pursue the VIGP project, which represents a source of future pollution similar to the Sumas project which the BC government has spent \$700,000 opposing because of air quality concerns on the mainland. They appear to believe that it is acceptable to unnecessarily pollute air here on Vancouver Island, because we do not yet have the same problems as the mainland. With such a short-sighted approach, we soon will. Since better solutions are believed to exist, this must not be allowed to happen.

I have taken the liberty of attaching my submissions in the GSX and VIGP hearings. Not all of this will be relevant to the matters you are concerned with, but they outline the basis for my opposition to both of these projects, which include avoidable fragmentation of habitat and increased risk to species of concern, and subsequent air pollution. In the context of aggregate environmental impact, my interpretation of the viewpoint put forward in the application is that so much damage has been done by others already, more damage is proportionately less significant. I would argue that the opposite is the case.

I believe there is mention in your report that the minimum leak size that could be detected is 1% of the total throughput of the pipeline. While this looks like a small number, it represents a great deal of natural gas; evidence in the NEB review is that it would take 9 hours for the pipe to empty in the event of a rupture. The safety concerns this prompted were downplayed by the applicant.

Faced with intransigence by the proponent, our best hope for a better solution to come into being is for all regulatory bodies to refuse to approve GSX, an environmentally damaging project which has been shown to be both unnecessary and flawed. It has been shown that we have a number of other better choices. I hope you will recognise the contrary evidence which has come forward since the original FERC review and find that GSX should not be approved, because it is not necessary, and can be expected to have greater adverse environmental impacts than the alternatives, which do not involve new rights of way. I urge you not to approve GSX.

Thank you for allowing me the opportunity to provide input to your process.

Yours sincerely

Màiri McLennan

**Public Comment Form For The
Williams Gas Pipeline Co and BC Hydro Gas Pipeline Project SEIS**
Public comment period ends October 25, 2003

Please place comments in comment box or mail to:
Shiela Hosner, Department of Ecology, 3190 - 160th Ave SE, Bellevue WA 98008

Name: Claudia Mills (PhD Marine Biology)

Address: P.O. Box 1636
Friday Harbor WA 98250

E-mail Address: cemills@rockisland.com

Comments:

I object to bringing this pipeline through the northern portion
of San Juan county. The region (near Stuart Island) proposed
for the crossing, is deep and of high topographic diversity.

Even in the Canadian waters of Boundary Pass there are
likely to be some of the few remaining large rockfish in
the area - in deep rocky terrain - There is undoubtedly
also an important invertebrate fauna in this region that
has been insufficiently documented. Just because it is
not known what is there is no reason to abuse that fauna -
rather it is reason to protect it until it is better known.

The Boundary Pass region has been selected for the proposed
TransBoundary Orca Pass Marine Protected Area because of
the high diversity and numbers of Marine Birds and Mammals
at the surface there. It is folly to put this industrial project
in a location also being earmarked for this
Marine Protected Area because it is so special.

(Additional public comment)

Received 10/14/2003
San Juan Public Hearing
Bev Poston - Hearing Officer

GSX PROJECT FAILS TO PROVE NEED FOR PIPELINE**THE STATED NEED FOR THE PIPELINE**

In its original application to the FERC, GSX states 100% of the capacity of the pipeline is contracted to PowerX for its power generating facility in Port Alberni. There would be no allocation of gas to Washington residents. The PowerX project was cancelled by BC hydro in October 2001.

In the final EIS used to determine the need for the pipeline, GSX stated the line will service 2 power generation plants on Vancouver Island.

BC Hydro stated the VIGP would proceed at Duke Point near Nanimo. The project would have similar equipment and gas requirements as PowerX.

The 265 MW Duke Point Project was rejected as being too expensive by BC Utilities Commission in early September 2003.

The Campbell River facility, is an operational 240 megawatt facility to be serviced by GSX with the unused gas from the Duke Point powerplant.

Where is the proven need for the pipeline, required by the FERC, before this pipeline was approved?

1

THE REAL NEED FOR THE PIPELINE**Letter to Nanimo Citizens Organizing Committee: 9-25-2002**

From: Lachlan Russel Project Manager
For Larry Bell

"BC Hydro's goal is to become The Leading Supplier of Sustainable Energy for North America."

"As part of Canada's voluntary commitment to the Kyoto Accord, BC Hydro is using the GSX pipeline as a means to reduce emissions by providing a supply of green gases for the purpose of generating electricity."

The original 2001 application stated the GSX pipeline would be moved 15' to accommodate the SE2 project in Sumas.

BC Hydro News Letter Oct 2002:

Decommissioning the existing transmission system and replacing it with the GSX pipeline: Price, 360 million.
90.7 million will be spent on the US portion of the pipeline.

Upgrading existing system to industry standard: Price, 400 million.

Williams News Letter 4-28-2003:

GSX will serve 2-250 MW plants and supply future industrial and commercial users in Washington. To meet regulatory process time lines the in-service date has been changed from Oct 2003 to 2005.

Site Plan Change:

BP Cherry Point Generation facility was moved from Jackson Rd. to its current Grandveiw Rd location closer to the proposed GSX pipeline route.

ALTERNATIVES

The Terasen alternative identified in the final EIS is not mentioned in the supplemental EIS for the SEPA reveiw.

9-24-2003: The supplemental EIS supplied for the SEPA reveiw identifies additional alternatives not disclosed in the final EIS used in the FERC process.

The loop sytem proposed as an alternative to GSX in the supplemental EIS is the most common sense alternative to GSX.

3 additional loop projects to Vancouver Island are already being undertaken by another Gas company. 2 have been approved.

52 BC Hydro Green Energy projects producing 3,300 GW. All have been approved.

2

Violating Due Process

There is a report in the October 14, 2003 Bellingham Herald, GSX is trying to circumvent 2 of the states permitting processes. GSX contends the Dept of Ecolgy missed the deadline for the SEPA reveiw. They are asking the FERC to waive this requirement.

3

One of the 78 properties aquired by GSX is encumbered with a stipulation binding two 5 acre parcels together, the owner cannot sell or lease the property without approval of Whatcom County.

GSX bought the property anyway, without going through the approval process provided for in the deed of trust issued by Whatcom County.

The record of this sale has been recorded in the auditors files at the Whatcom County Courthouse.

GSX has a record of violating property rights of people in Whatcom County. There were numerous trespassing complaints made by residents to the Sherriff's Office during the survey of the proposed route. Sheriff Dale Brandland took no action on these complaints.

Other property owners have been harrassed by GSX employees charged with obtaining the necessary properties for the pipeline. Some have told GSX they are not to come onto their property again. Others have folded to the pressure after being told they don't have a choice in accepting their offer.

The prices GSX has paid for the 78 properties they have purchased vary and are not consistent with the prices paid for neighboring property of the same size and zoning. The FERC stated GSX severely undervalued the prices it offered to the property owners and was not consistant in all of its offers. **Compare the Seigman Estate to the Bishop property information.** Both property

owners have fallen victim to GSX's tactics.

Economic Benefits

Reported by the Expropriation Law Center 5-12-2001 "The GSX pipeline will result in increased property tax revenue for Whatcom County."

This is not true. The residents of the affected properties will still pay the taxes on the right of way issued to the pipeline company just as they do on the county road right of way in front of their homes and businesses.

The Draft EIS states Whatcom County will receive 1.3 million annually from GSX in additional property taxes. In 2003 the property owners were taxed for the entire property acquired by GSX. There is no reduction of the size of the taxed property affected by the pipeline. GSX paid none of the tax assessed on the affected property.

There is a short term economic benefit in temporary employment of 300 employees for 95 days working onshore and 390 employees working offshore. Local Restaurants, Hotels, Gas Stations, and some construction supply companies will see some of the short term economic benefits.

There will also be permit fees paid to the various regulating agencies and a one time, \$6.6 million, sales and use tax paid to the State of Washington.

Gsx cannot predict the number of local people who will be hired, but will state there will be no impact to the local unemployment rate.

Proposed Economic Plan

The Whatcom County Planning Department imposed a 500' buffer zone along the utility corridor to be occupied by the GSX project.

The affected properties were included in the utility corridor without individual notice to the owners of their property rights under Eminent Domain law.

The Planning Department imposed restrictions on the owners use of their property without compensation for the loss of their property rights.

Whatcom County should pay a portion of the cost to acquire land for the utility corridor and pay land owners for the effects of the 500' buffer zone on their properties.

The entire utility corridor should be zoned Industrial Use Property.

The industries using these utility corridors, should be required to pay the individual property owners based on the current industrial land prices in the Cherry Point area, the destination of the pipeline utility corridor.

The Pipeline companies should then pay property tax based on industrial use of the land, since they are using the property for the purpose of producing electricity.

This would pay the county more than current taxes collected on the affected properties.

Environmental

Birch Bay Urban Growth Area

The pipeline is crossing into the Birch bay Urban Growth area at milepost 28.23 on Kickerville Rd. It continues until it intersects with the boundary of the Urban Growth Area at milepost 29.71. It continues along the boundary of the urban growth area until crossing into the urban growth area again on Jackson Rd where it exits the mainland at mile post 33.

4

GSX states in the draft supplemental EIS 9-24-2003 the pipeline does not cross into any urban growth areas.

Fault Lines

Only 2 of the fault lines are discussed in the draft EIS. Not one of the 17 other fault lines identified offshore in the Federal EIS are mentioned in the draft EIS 9-24-2003.

5

GSX expects the S lay method to be adequate for any offshore movement along the fault lines.

No study of the expected amount of movement during an earthquake has been presented to predict what effects an event of 7.0 or greater will have on the pipeline.

Wild Life

The FERC requested that GSX provide more information on the roosts and nests of Bald Eagles and other Raptors near the pipeline. I have 2 areas on the property I live on raptors use as roosts. I have identified Red Tailed Hawks, Owls, Bald Eagles and falcons. Two of the Fir trees the birds use to roost are 50' from the site of the pipeline.

6

I have not seen a report submitted by GSX on the sites they have identified as being nests or roosts of Raptors.

Salmon restoration efforts have started on Terrell Creek, in an attempt to restore its salmon runs.

There are salmon, I have seen spawning, in December, in Tarte Creek.

GSX states in the Army Corps of Engineers report, 260 cu ft of backfill will be used to cross Tarte Creek and Campbell Creek, another tributary of the California Creek watershed. This entire watershed has been off-limits to salmon fishing for many years in an attempt to restore its salmon runs. No amount of backfill should be used in these two creeks.

7

What mitigation is GSX performing to these watersheds to enhance the salmon runs near its crossings of Terrel Creek, California Creek, and other salmon bearing streams crossed along the pipeline route?

David Seigman - 360-366-4963 - 7235 Kickerville Rd. Ferndale Wa. 98248 October 25, 2003

From: Aubrey Stargell [forestry@qwest.net]
Sent: Tuesday, October 07, 2003 12:12 PM
To: Hosner, Sheila
Subject: Georgia Strait pipeline crossing

I am a Whatcom County resident. I am in support of the Georgia Strait Crossing gas pipeline. We need to continue to develop more ways to meet our growing energy demands.

1

Thank you for the opportunity to comment.

Aubrey Stargell
Maple Falls, WA

Wednesday, October 29, 2003

FW: Public Comment on GSX

Page: 1

Subject: FW: Public Comment on GSX
Date: Tue, 28 Oct 2003 11:30:30 -0800
From: "Hosner, Sheila" <SHOS461@ECY.WA.GOV>
To: 'Richard Butler' <rbutler@shap.com>

GSX comments

-----Original Message-----

From: Stephanie Buffum [mailto:stephanie@sanjuans.org]
Sent: Saturday, October 25, 2003 9:36 PM
To: Hosner, Sheila
Subject: Public Comment on GSX

Public Comment Letter

SEIS - Georgia Strait Crossing Natural Gas Pipeline Project

Date: October 25, 2003

Delivered via email

shos461@ecy.wa.gov

TO: Sheila Hosner
Washington Department of Ecology
3190 160th Ave SE
Bellevue, WA 98008-5452

FR: Stephanie Buffum
Friends of the San Juans
PO Box 1344
Friday Harbor, WA 98250

RE: Comment on SEIS - Georgia Strait Crossing Natural Gas Pipeline Project

Applicants: Robin and Mike Bergstrom, owners, Harbor Innkeepers

Dear Ms. Hosner,

This letter serves as public comment for the initial notice on the above referenced activity

for the draft supplemental environmental impact statement (DSEIS) for the proposed Georgia Strait Crossing natural gas pipeline project. These comments are submitted on behalf of Friends of the San Juans, a non-profit organization dedicated to protecting the unique environment of Washington's San Juan Islands. Friends of the San Juans speak for its members who live on, work in, and enjoy the San Juan Islands. We appreciate the opportunity to comment on this project and thank you for your consideration of our serious concerns.

Background

This DSEIS supplements the July 2002 project environmental impact statement prepared by the Federal Energy Regulatory Commission and the U.S. Army Corps of Engineers.

The U.S. mainland portion of the proposed pipeline would travel about 33 miles from Sumas to facilities at Cherry Point, west of Ferndale. The pipeline's land route in Whatcom County would pass near the cities of Lynden, Ferndale and Birch Bay, roughly parallel to existing pipelines.

From Cherry Point, the pipeline would continue under the Strait of Georgia about 33 miles roughly southwest, partially buried in marine sediments for the first five miles and then positioned on the ocean floor for the remaining 28 miles.

It would pass near the northern ends of Waldron and Stuart islands in Washington and the south sides of Saturna, Pender and Moresby islands in British Columbia. On Vancouver Island near Hatch Point, the pipeline would extend an additional 10 miles overland to connect to the Terasen pipeline.

1. The original EIS approved by FERC is not compatible with the SEIS, due to the significant route and design changes.

The pipeline proposal received conditional approval by the Federal Energy Regulatory Commission (FERC) on July 17, 2003. The pipeline initially was slated to serve a proposed power plant in Duncan, B.C. However construction of that plant was recently denied by a B.C. utilities board, the GSX gas pipeline could still provide fuel for an existing electrical plant in Campbell River, B.C. We feel that the original EIS approved by FERC is not compatible with the SEIS, due to the significant route and design changes.

1

Ecology determined that 39 issues in the Final EIS were not adequately addressed to satisfy SEPA

requirements. On July 28, 2003, Ecology gave GSX-US the list of issues that would need to be addressed in a Supplemental EIS.

For this Supplemental EIS, each of the 39 issues is assigned to a corresponding topic or element of the environment under SEPA. Those issues provide the framework for the environmental analyses in the Supplemental EIS. The topic areas are:

2. Seismic Activity

The pipeline route is in an area of high seismic activity. This activity, as manifest by earthquakes, can result in ground vibration, tsunamis, ground upheaval, marine and terrestrial landslides, and soil liquefaction. Liquefaction potential is low to moderate for the terrestrial segment of the proposed route. The areas along the pipeline route that are susceptible to seismic liquefaction coincide with those areas where a high groundwater level will cause buoyant uplift. Moderate to large earthquakes are known to have resulted in a variety of underwater landslides and coastal liquefaction phenomena. All of these events have potential to increase risk of pipeline rupture, the degree of risk being dependent on the magnitude of the event, the characteristics of the pipeline route, and the pipeline design specifications. In the event of a line break, most gas would bubble to the surface and escape to the atmosphere. Pressure-sensitive shut-off valves on both shores could be remotely or locally operated to isolate the ruptured marine segment. The volume of confined gas would escape to a point where it equalized with external pressure. Some bottom scour could occur near the leak or line break depending on the direction it faced. Temporary, localized disturbance of benthic flora and fauna would occur

2

3. Cumulative impact of underwater noise likely to adversely impact fish, wildlife, and marine species.

Vessel traffic, sonar testing, coupled with the gas line pose significant environmental risk to marine mammals, fish and other wildlife. Anthropogenic sounds on fish; wildlife and other marine species are likely to be impacted during the construction and operation of the proposed pipeline.

Anything that hampers their ability to detect biologically relevant signals will have a potentially deleterious effect on their survival of marine mammals such as orca, porpoise and seals currently protected under the Marine Mammal Protection Act, and other fisheries such as federally listed salmon, salmon prey fish and federally protected raptors (Bald Eagles, Osprey, Murrelets protected under the Migratory Bird Treaty and/or Endangered Species Act. Because many of these federally protected species of salmon and birds dependence on the shoreline for feeding on forage prey fish (herring, smelt and sand lance) any adverse impact in the ocean causing the alteration of fish would constitute a take under the Endangered Species Act. Proponents should be in consultation with the National Fish and Wildlife Service as well as NOAA Fisheries on this project with specific study being conducted on impacts to federally listed species.

3

Project related noise could pose significant harm to federally protected marine mammals and fish (salmon, bottomfish, herring, surfsmelt, sandlance.)

4

From hearing biologically relevant sounds. This interference, called masking, is a consequence of noises being in the same frequency range as communication of other biologically relevant sounds.

While it is hard to predict the consequences of changes in stress levels on fish, a temporary loss of hearing could mean that a marine mammal or fish loses some ability to detect predators or prey, communicate acoustically, and/or determine the structure of the acoustic environment. Long term exposure to low frequency as well as loud sounds might permanently deafen marine mammals and fish this decrease their chances of survival.

This report fails to address long-term, short-term, and cumulative impacts of noise in the marine environment.

5

There are several resident orca populations in the eastern north Pacific ocean. The Southern Residents occupy Puget Sound, Haro Strait, and the Strait of Juan de Fuca from late spring through early fall. The Northern Residents live off northern Vancouver Island during the summer, and two resident populations live in Alaskan waters. These populations have been reproductively isolated from each other for thousands of years.

Both of these declines were followed by periods Orcas have one of the most complex social systems of all marine mammals. As social predators, orcas work cooperatively to feed upon a variety of marine organisms. The latest decline is driven by an inexplicable increase in mortality of young adults and juveniles, without substantial reduction of calving. Scientific evidence attributes the current decline to high levels of bioaccumulative toxins in the Sound and in whale tissues, a population decline in their preferred salmon prey, and human disturbance from vessel traffic and noise.

The SEIS needs to adequately address the issues of acoustic pollution and biological contaminants in the event of a break in the pipeline.

6

NMFS should be consulted on this project with specific attention to the impacts this project causes on orca and other marine mammals.

7

4. Both the EIS and the SEIS fail to Address Impacts and Alteration to Nearshore Habitat .

Geotechnical erosion and sedimentation resulting from construction crossing the Squamish River is considered to be the most environmentally sensitive crossing. Sediment supply, primary production, and export, occur between upland and marine environments could be adversely affected by sediment loading.

8

Wednesday, October 29, 2003

FW: Public Comment on GSX

Eelgrass, kelp, pickleweed, saltwort, rockweed, sedge, spartina, gracilaria, ulva, fish herring from spawn to adult, surf smelt and spawn, sand lance and larvae, sculpins, clingfish, gunnels, shiner perch, juvenile tomcod, English sole, starry flounder, sturgeon poachers, greenling, cabezon, stickleback, flatfish, tubesnout, goby, and prickleback, mussels, barnacles, crabs, limpets, chitons, shrimp, scallops, amphipods, clams, snails, abalone, geoducks, oysters, and moon snails could all be affected by erosion.

8
cont.

Essential ecological functions important to the recruitment and survival of the region's fish and shellfish species provided by nearshore habitats are prey resource production, refugia, and reproduction. The loss or alteration of habitats can reduce or eliminate its usefulness to the species that depend on them. The changes in marine nearshore habitat have greatly contributed to the decline of wild salmon runs.

5. Does this Project pose a Threat to Marine or Aerial Navigation?

9

Does the proposed pipeline impact our ability to detect vessels in the area through GPS or impact other marine or aerial navigation?

San Juan County does not have a plan, the zoning, or facilities in place to house a transfer station for the pipeline.

10

We appreciate the opportunity to comment on this project.

Sincerely,

Stephanie Buffum



GSX Concerned Citizens Coalition

The Georgia Strait Crossing Concerned Citizens Coalition
 302 - 733 Johnson Street, Victoria, BC, V8W 3C7
 Telephone 250-381-4463, Fax 250-381-4407
 Email: gsxccc@sqwalk.com Website: www.sqwalk.com

24 October 2003

Ms. Sheila Hosner
 Department of Ecology
 3190 - 160th Avenue, S.S.E.
 Bellevue, Washington, 98008-5452
 fax: (425) 649-7098
 email: shosner@ecy.wa.gov

**Re: Georgia Strait Crossing ("GSX") natural gas pipeline proposal:
 Invitation by the Washington State Department of Ecology
 for public review and comments**

Dear Ms. Hosner:

Further to the Washington State Department of Ecology solicitation of comments on the Georgia Strait Crossing ("GSX") gas pipeline project, the GSX Concerned Citizens Coalition ("GSXCCC") submits the following:

GSXCCC is a registered society in the Province of British Columbia, with some eighty individual members (mostly on Vancouver Island) and eight British Columbia member groups:

- Sierra Club of Canada, British Columbia Chapter;
- Georgia Strait Alliance;
- Canadian Parks and Wilderness Society - BC;
- Council of Canadians, Victoria Chapter;
- Council of Canadians, Cowichan Valley Chapter;
- Saturna Island Community Club;
- Pender Island Conservancy Association;
- Shawnigan Lake Watershed Watch

GSXCCC is a registered intervenor in both the National Energy Board - Canadian Environmental Assessment Agency Joint Panel Review of the GSX proposal; and the British Columbia Utilities Commission ("BCUC") review of the Vancouver Island Generation Project ("VIGP"). GSXCCC brought expert evidence in both these reviews, covering a wide range of issues, including:

- Energy planning issues (particularly the demand for and supply of electricity to Vancouver Island, i.e. the fundamental rationale for GSX and VIGP);
- Long-term gas supply and prices;
- The environmental effects of GSX and VIGP, particularly the effects of increased greenhouse gas ("GHG") emissions;

- The potential future financial liability of VIGP for its GHG emissions.

The following analysis is not aimed at the specific categories of the Department of Ecology's Draft Supplemental EIS, except to the extent that comments on greenhouse gas emissions can be considered as pertaining to "Air Quality." However, GSXCCC submits that the following discussion on the lack of need for GSX and VIGP is material to the question of whether any environmental impacts are justified in the circumstances. GSXCCC holds that GSX and VIGP are not needed and not in the public interest; and therefore any environmental impact of GSX -- either in Canada or the U.S.A. -- cannot be justified.

1. The need for GSX is contingent on VIGP.

The record clearly establishes that GSX is linked to plans for a second gas-fired generation facility on Vancouver Island (specifically, VIGP), such that GSX will not proceed without that generation facility. This is acknowledged by the regulatory authorities and by BC Hydro and its corporate entities (including GSX PL Ltd):

[GSX] is a part of an overall plan by BC Hydro, through various corporate relationships and partnerships with others, to build and operate an international pipeline from Washington State to Vancouver Island, purchase gas for transportation to Vancouver Island on the pipeline, enter into a 30 year contract for 100% of the transportation capacity of the pipeline and thereby ensure the delivery of the gas as feedstock to a new generation facility. (GSX review: Joint Review Panel letter of 31 May 2002, p. 11)

And:

... in the absence of a second generation facility on Vancouver Island, the GSX Pipeline Project will not proceed. ... (GSX review: Final Argument of GSX PL Ltd (the applicant), Transcript Vol. 15, paragraph 23063)

BC Hydro's corporate proxy, GSX PL Ltd, agrees that it is appropriate for the BCUC to determine the fate of GSX, based on its approval or rejection of VIGP:

... That doesn't mean, though, that you, in your decision, should be adjudicating on the merits of VIGP. Indeed, you can and should leave that assessment to the BCUC.

Your concern here, Madam Chair and Panel members, should be to ensure that the GSX Canada pipeline is not constructed absent a clear indication that the market for the transported gas is going to be there. And that concern can be addressed simply by conditioning your pipeline approval on the receipt of provincial regulatory approvals for the second generation facility. (GSX review: Final Argument of GSX PL Ltd, Transcript Vol. 15, paragraphs 23063 & 23064)

2. The need for VIGP has not been established.

The BCUC reviewed VIGP from March to July of 2003. In reaching its decision, the Commission made several findings relevant to the need for GSX. The primary finding led to the refusal to grant a Certificate of Public Convenience and Necessity:

Based on the evidence and the Commission Panel conclusions in this Decision, the Commission Panel finds that VIEC has not established that VIGP is the most cost-effective means to reliably meet Vancouver Island power needs. Therefore, the Commission Panel denies the Application for a CPCN. (VIGP review: BCUC Decision, 8 September 2003, p. 77)

2

3. The amount of electricity required (by 2007/08) is 46 percent less than BC Hydro has claimed; and VIGP is not necessarily an effective means to supply that amount.

In its application for a Certificate of Public Convenience and Necessity, BC Hydro's corporate proxy, the Vancouver Island Energy Corporation ("VIEC"), claimed there would be a shortfall of 213 megawatts (MW) on Vancouver Island by 2007/08. Based on evidence and arguments submitted by GSXCCC and others, the BCUC concluded:

3

The majority of intervenors accept that there is a need to address a future supply/demand balance problem. While careful analysis of load growth, supply additions and load reductions has narrowed the 213 MW shortfall advanced by VIEC to 116 MW [in 2007/08], the problem cannot be entirely resolved without considering other supply alternatives. (VIGP review: BCUC Decision, 8 September 2003, p. 27.

During the course of the VIGP review, BC Hydro stated its intention to implement a Call for Tenders ("CFT") process, in order to seek private bids to supply electricity to BC Hydro to meet the anticipated shortfall of electricity on Vancouver Island:

1.1 Purpose: The purpose of the Call for Tenders ("CFT") is to determine the preferred option for meeting BC Hydro's need for dependable electrical capacity and associated electrical energy to serve load on Vancouver Island. (VIGP review: Applicant's [i.e. VIEC; BC Hydro] Reply Argument, 25 July 2003, p. 39: Schedule A)

And

2.2 BC Hydro Requirements: The CFT will invite tenders to meet BC Hydro's need for 20 years' supply of dependable electrical capacity of a minimum of 240 MW in aggregate on Vancouver Island ... (VIGP review: Applicant's [i.e. VIEC; BC Hydro] Reply Argument, 25 July 2003, p. 40: Schedule A)

The BCUC encouraged BC Hydro to seek a lower minimum amount of capacity through its CFT:

The Commission Panel anticipates that the sum of the viable tenders will provide BC Hydro with an aggregate Dependable Capacity of at least 150 MW, which would provide a buffer above the 116 MW required in 2007/08. The Commission Panel encourages BC Hydro to seek approval for projects with an aggregate capacity of at least 150 MW ... (VIGP review: BCUC Decision, 8 September 2003, p. 83)

BC Hydro has adopted this recommendation:

The Vancouver Island Call For Tenders will be for dependable capacity from new generation using a proven technology, for a minimum of 150 MW in aggregate. (Updates on Vancouver Island Call for Tenders, October 17, 2003 Update; BC Hydro web site: <http://eww.bchydro.bc.ca>)

4. A 230 kV sub-sea cable system from the Lower Mainland to Vancouver Island is a technically superior alternative to GSX and VIGP.

Considerable evidence was brought on the possibility of building a 230 kV sub-sea cable system from the Lower Mainland to Vancouver Island, as an alternative to GSX and VIGP (or other new generation on the Island). A new cable system would effectively replace an existing high-voltage DC ("HVDC") cable system that BC Hydro intends to zero-rate for planning purposes in 2007/08. This zero-rating is the immediate cause of the forecast capacity deficit on the Island.

4

The BCUC concluded:

In addition BC Hydro testified that on a technical basis the 230 kV line option is preferred as a first step [to meeting Vancouver Island's electricity requirement]. ... BC Hydro also testified that it had performed a system study comparing the system dynamic performance of two 300 MW CCGTs ["combined cycle gas turbines"] located on the Island (in addition to the existing ICP) to one 230 kV transmission line and in this scenario the alternatives had a similar performance ... Both systems required similar amounts of load shedding under N-2 conditions, but the transmission system had a better frequency response under the 230 kV transmission line scenario. The study also demonstrated that system losses were greater for the two CCGTs scenario than the 230 kV transmission line option. (VIGP review: BCUC Decision, 8 September 2003, p. 56)

And:

The Commission Panel recognizes that the 230 kV line option may be the best reliability reinforcement if on-Island generation becomes prohibitively expensive. (VIGP review: BCUC Decision, 8 September 2003, p. 57)

5

5. GSX and VIGP are not shown to be a less expensive way to meet Vancouver Island's electricity needs than the 230 kV alternative.

BC Hydro carried out extensive portfolio analysis to determine the relative costs of GSX and VIGP with other alternatives, based on a net present value ("NPV") calculation. Three main alternatives were considered.

BC Hydro ranked the NPV costs as follows (2002/03 to 2021/22):

- GSX & VIGP, with future off-Island generation (called "Portfolio 1" and "Portfolio 13"): \$9,236,000,000;
- GSX & VIGP, with future on-Island GGCT generation ("Portfolio 2" and "Portfolio 11"): \$9,081,000,000;
- 230 kV circuits, with off-Island generation ("Portfolio 3" and "Portfolio 14"): \$9,222,000,000.

The BCUC found BC Hydro had over-estimated the cost of the 230 kV circuit alternative:

The NPV cost of \$9,222 million for Portfolio 14 includes \$245 million of incremental TGVI gas transportation costs. If the incremental TGVI gas transportation costs are removed in order to be consistent with the determinations in Chapter 5, then Portfolio 14 [the 230 kV cables alternative] is \$104 million less expensive than Portfolio 11 [GSX, VIGP and future on-Island CCGTs] and \$259 million less than Portfolio 13 [GSX & VIGP, with future off-Island generation]. This is a material difference in favour of Mainland generation with a new 230 kV transmission line to the Island. [emphasis added] (VIGP review: BCUC Decision, 8 September 2003, p. 69)

However:

The Commission Panel considers that the results of the portfolio analysis are not conclusive. While many of the scenarios favour VIGP and the development of gas generation on Vancouver Island, other scenarios support a new transmission line to the Island. ... In the current natural gas price environment, BC Hydro may have many other resource options available at lower cost than a CCGT on the Mainland. [emphasis in original] (VIGP review: BCUC Decision, 8 September 2003, p. 74)

6. In its economic calculations, BC Hydro underestimated the likely long-term price of gas.

As an additional economic factor against GSX and VIGP, the BCUC found that BC Hydro's long-term forecast of natural gas prices was unduly optimistic:

The Commission Panel concludes that gas prices in the future are likely to be higher than VIEC's reference price forecast. [emphasis in original] (VIGP review: BCUC Decision, 8 September 2003, p. 39)

7. In its economic calculations, BC Hydro should have included a cost factor for greenhouse gas emissions liability.

As an additional economic factor against GSX and VIGP, the BCUC found that BC Hydro had factored in greenhouse gas ("GHG") emissions liability for VIGP, to the extent of \$2 million (Canadian):

Several intervenors raised the issue of greenhouse gas (GHG) emissions from VIGP, and the contingent liability that BC Hydro may face from possible future GHG emission regulations. VIEC included \$2 million in the total net present value costs of Portfolios 1 and 2, as the expected cost of meeting its voluntary commitment to offset 50 percent of the GHG emissions from VIGP through 2010 (VIGP review: BCUC Decision, 8 September 2003, pp. 48-49.)

However, the BCUC found:

... the financial analysis of VIGP and alternative projects needs to explicitly recognize potential GHG liability.

The evidence indicates that a GHG emission offset cost of \$10 per tonne CO₂ equivalent is broadly supported at this time. This represents a cost of about \$3.60/MWh for VIGP. ... It would also indicate a zero cost for hydroelectric and wind, and a nominal cost for generation fueled with biomass. A typical coal-fired generation plant would have a cost of \$10/MWh. ... Including GHG liability costs in the comparison of alternatives will also address and give reasonable weight to the greenhouse gas emissions concern that several parties raised. **The Commission Panel determines that a GHG emission offset cost of \$3.60/MWh in real 2002 dollars should be used in the analysis of VIGP.** [emphasis in original] (VIGP review: BCUC Decision, 8 September 2003, pp. 51-52)

8. The 230 kV alternative would be environmentally less harmful than GSX and VIGP.

The 230 kV sub-sea cable circuit from the BC lower mainland to Vancouver Island would be laid along an existing transmission cable right of way, according to BC Hydro's study: *Project Planning Report: 230 kV Transmission Circuit from Arnott to VIT* (BC Hydro System Planning Report No. SP2003-4: June 2003). (This study was filed in the VIGP review as VIEC's supplementary response of 16 June 2003 to BCUC Information Request 1.21.3 -- available on the BC Hydro web site). As such its direct environmental impacts would be expected to be minimal, and less than those of GSX.

The 230 kV alternative is superior to GSX and VIGP in its potential to avoid increases in GHG emissions. Building GSX and VIGP would unavoidably commit BC Hydro to increasing its system GHG emissions, to the extent of the emissions of the operation of VIGP, i.e. some 800,000 tonnes of CO₂ equivalent per year.

In addition, as demonstrated by BC Hydro's analysis of its resource portfolios (summarized under heading #5, above), a decision to build GSX would predispose BC Hydro to meeting future electricity demand on Vancouver Island with more gas-fired generation on the Island, instead of by other means, such as green (non-GHG emitting or GHG-neutral) energies or energy conservation. This is because the high capital cost of GSX makes for high transportation tolls for VIGP, and building more CCGTs to be supplied by GSX would spread its capital costs over more customers, reducing the per-customer and unit electricity costs. Effectively, a decision to build GSX would predispose BC Hydro toward higher system-wide levels of GHG emissions than might otherwise be the case.

The presumptive alternative to gas-fired generation would be energy conservation and green energy, not more fossil fuel energy:

During the VIGP review, BC Hydro argued that the 230 kV alternative would require the same additional amounts of gas-fired generation as would GSX, and the 230 kV alternative would therefore have the same GHG impact. The BCUC did not accept this claim:

... BC Hydro may have many other resource options available at lower cost than a CCGT on the Mainland. (VIGP review: BCUC Decision, 8 September 2003, p. 74)

Further, BC Hydro brought evidence of independent power producer proposals for some 5,500 GWh/yr of green energy (non-GHG emitting or GHG neutral) potential in BC, with a dependable capacity of 200 - 425 MW -- all at a ceiling price lower than the price of electricity from VIGP. (VIGP review: VIEC response to GSXCCC Information Request 1.4.1)

This potential is confirmed by the recent results of BC Hydro's latest purchase of green energy:

The largest purchase of green energy in B.C.'s history will provide about \$800 million in private-sector investment in 16 power projects, and an additional 1,800 gigawatt hours per year to meet the energy needs of British Columbians.

... The electricity, to be generated by 14 hydro, one landfill gas and one wind energy project, will be purchased under contracts with independent power producers ...

... "Our original plan was to acquire up to 800 gigawatt hours per year from this call, but we always reserved the right to increase that cap," [BC Hydro Chair and CEO, Larry] Bell said. "Given that all of the projects met our criteria -- including that they all fell within our ceiling price of \$55 per megawatt hour -- and our need for new electricity supply, we decided to purchase electricity from all of them." (BC Government - BC Hydro joint news release, 26 September 2003)

In addition, as demonstrated by BC Hydro's analysis of its resource portfolios (summarized under heading #5, above), a decision to build GSX would predispose BC Hydro to meeting future electricity demand on Vancouver Island with more gas-fired generation on the Island, instead of by other means, such as green (non-GHG emitting or GHG-neutral) energies or energy conservation. This is because the high capital cost of GSX makes for high transportation tolls for VIGP, and building more CCGTs to be supplied by GSX would spread its capital costs over more customers, reducing the per-customer and unit electricity costs. Effectively, a decision to build GSX would predispose BC Hydro toward higher system-wide levels of GHG emissions than might otherwise be the case.

The presumptive alternative to gas-fired generation would be energy conservation and green energy, not more fossil fuel energy:

During the VIGP review, BC Hydro argued that the 230 kV alternative would require the same additional amounts of gas-fired generation as would GSX, and the 230 kV alternative would therefore have the same GHG impact. The BCUC did not accept this claim:

... BC Hydro may have many other resource options available at lower cost than a CCGT on the Mainland. (VIGP review: BCUC Decision, 8 September 2003, p. 74)

Further, BC Hydro brought evidence of independent power producer proposals for some 5,500 GWh/yr of green energy (non-GHG emitting or GHG neutral) potential in BC, with a dependable capacity of 200 - 425 MW -- all at a ceiling price lower than the price of electricity from VIGP. (VIGP review: VIEC response to GSXCCC Information Request 1.4.1)

This potential is confirmed by the recent results of BC Hydro's latest purchase of green energy:

The largest purchase of green energy in B.C.'s history will provide about \$800 million in private-sector investment in 16 power projects, and an additional 1,800 gigawatt hours per year to meet the energy needs of British Columbians.

... The electricity, to be generated by 14 hydro, one landfill gas and one wind energy project, will be purchased under contracts with independent power producers ...

... "Our original plan was to acquire up to 800 gigawatt hours per year from this call, but we always reserved the right to increase that cap," [BC Hydro Chair and CEO, Larry] Bell said. "Given that all of the projects met our criteria -- including that they all fell within our ceiling price of \$55 per megawatt hour -- and our need for new electricity supply, we decided to purchase electricity from all of them." (BC Government - BC Hydro joint news release, 26 September 2003)

9. The VIGP review identified several potentially viable and (in some cases) environmentally less harmful alternatives to VIGP.

Several intervenors in the VIGP review brought evidence of proposals for alternative means for meeting Vancouver Island's electricity needs, instead of GSX and VIGP. Some or all of these proposals may become tenders in BC Hydro's present CFT process.

Without addressing the specific merits of these potential alternatives, it is clear from the BCUC's findings that it believes some of these alternatives to be practical and promising:

The Commission Panel views NorskeCanada's proposal [several small gas-fired cogeneration generators] as promising and considers that it has the potential to produce a lower cost alternative to VIGP. However, the Commission Panel recognizes that this proposal has arisen recently and will require significant work between BC Hydro and NorskeCanada to finalize their respective positions. (VIGP review: BCUC Decision, 8 September 2003, p. 60)

And:

Considering that the cost of power from the plant [Green Island Energy Ltd: 104 MW biomass-fuelled -- i.e., GHG-neutral -- steam generators] is being offered at \$60.10/MWh (which is much less than VIGP and is in line with the last Green Energy call), it would appear that this is an excellent opportunity for BC Hydro to contract with Green Island. Also, this generation resource could make an early contribution to improved operational reliability for Vancouver Island. (VIGP review: BCUC Decision, 8 September 2003, p. 60)

And:

The Commission Panel believes that, with BC Hydro's willingness to accept the gas price risk and given the inherent efficiencies from cogeneration and the possible green benefits from the secondary use of CO₂ (e.g., in greenhouses), a number of [cogeneration projects using Maxim Power Corporation generators and systems] may become viable. However, the Commission Panel recognizes that much work will have to be done to identify and develop specific projects. (VIGP review: BCUC Decision, 8 September 2003, p. 61)

And:

The Commission Panel notes that Strathcona and Ladore ["Resource Smart" upgrades to existing BC Hydro hydro-electric facilities] would be considerably more expensive than Revelstoke Unit 5 on a unit of capacity basis. Nevertheless, they provide other options for meeting relatively small capacity shortfalls on Vancouver Island. (VIGP review: BCUC Decision, 8 September 2003, p. 62)

And:

The Commission Panel believes [Hillsborough Resources Ltd's proposal for a 60 MW coal-fired steam turbine generator] may have promising economic advantages providing environmental permits can be obtained and the issue with the Regional District can be resolved. (VIGP review: BCUC Decision, 8 September 2003, p. 61)

In the case of the Hillsborough Resources proposal, GSXCCC acknowledges that a coal-fired generation facility would cause more GHG emissions per unit of electricity generated than would VIGP. However, GSXCCC submits that, under the circumstances -- an effective commitment with GSX to build further CCGT on Vancouver Island -- it is environmentally preferable to risk the development of a coal-fired generation project (in competition with other, non-GHG emitting resources) than to "lock in" to a strategy of gas-fired electricity generation on Vancouver Island.

10. The proposal by Terasen Gas Vancouver Island to expand its pipeline capacity is a viable alternative, which may be more cost-effective than GSX.

In its decision, the BCUC accepted that the proposal by Terasen Gas Vancouver Island (TGVI) to expand the capacity of its pipeline system is a viable alternative to GSX, and the BCUC attempted to distinguish the two alternatives, based on cost:

In response to a request from the Commission Panel Chair, BC Hydro and TGVI filed a joint submission on July 14, 2003 comparing the cost of GSX with that of the TGVI proposal. While resolving some differences, the parties did not reach consensus on which transportation proposal is more economic. (VIGP review: BCUC Decision, 8 September 2003, p. 44)

In summary, the BC Hydro/TGVI Joint Submission found that:

- BC Hydro believes that the present value ("PV") of service to the existing Island Cogeneration Project ("ICP") and VIGP over the relevant time period, using GSX, is \$442 million (Canadian), while the same service provided by TGVI is \$452 million -- i.e. \$10 million more than with GSX.
- TGVI believes that the PV of service to ICP and VIGP using GSX is \$419 million, while the same service provided by TGVI is \$303 million -- i.e. \$116 million less than with GSX.

In effect, BC Hydro believes the TGVI alternative has no significant cost difference from the GSX alternative; while TGVI believes its alternative is significantly cheaper. (A significant reason BC Hydro offers for continuing to favour the GSX alternative is that GSX becomes relatively more cost-effective in scenarios in which further gas-fired generation is built on Vancouver Island to meet future electricity demand. This further confirms GSXCCC's belief that building GSX effectively constitutes a commitment to further fossil fuel expansion beyond GSX and VIGP.)

In conclusion, GSXCCC submits that there is abundant evidence to refute the claim that GSX is needed to meet Vancouver Island's energy needs. In that case, any negative environmental effects of GSX cannot be justified.

All the above is respectfully submitted.

Sincerely,

Thomas Hackney, President

RECEIVED
OCT 27 2003
DEPT OF ECOLOGY



Naturam Expellas Furca

Tamen Usque Recurret

WISE USE MOVEMENT

Sheila Hosner
Department of Ecology
3190 160th Ave. S.E.
Bellevue, WA 98008-5452

RE: Draft Supplemental GSX Final Environmental Impact Statement

Dear Ms. Hosner:

We have reviewed a copy of the draft supplemental FEIS for the GSX pipeline project. We commend the Department of Ecology for preparing this draft document. We concur that the proposed project would have a significant adverse impact on the environment. The Wise Use Movement opposes the construction of this project and recommends, based on its adverse environmental impacts, that Ecology deny water quality certification and coastal zone consistency certification for this project.

1

The FEIS prepared for the Federal Energy Regulatory Commission's permitting process failed to adequately evaluate the need, or the project's environmental impacts. In particular, the FERC FEIS failed to present alternatives, including the no-action alternative in a fair and unbiased fashion.

2

Alternatives are the heart of the EIS process. 40 CFR Sec. 1502.14. Less-damaging alternatives such as an all-Canadian route, as well as increased delivery of natural gas to Vancouver Island via the existing natural gas pipeline must be evaluated, as the draft SFEIS has done.

3

The Wise Use Movement supports the recent motion of Fuel Safe Washington to reopen the FERC GSX docket and supplement the FERC FEIS.

4

The GSX pipeline would disrupt Washington wetlands. The proposed route would threaten Cherry Point, a critical shoreline area of statewide significance in Whatcom County (WA) for depleted herring stocks, which in turn are a feed source for anadromous salmon. The proposed

5

P.O. Box 17804, Seattle, WA 98127

route from Whatcom County to Vancouver Island also threatens the core area of the southern resident community of Orca whales.

Ecology's draft SFEIS, at pp. 3.3-17, 3.5-7 and 3.7-3, should address the environmental impacts of open cutting a trench through Cherry Point since FERC has already given its approval. FEIS, 3.4.2.3, p. 3-53.

6

The draft SFEIS, at p. 3.6-2 should also update the discussion of the SCADA system with lessons learned from the Olympic Pipeline disaster in Bellingham, WA, in 1999.

7

The draft SFEIS should quantify the energy savings that could be derived by conservation efforts and quantify the climate change gases generated by the GSX project over its life expectancy.

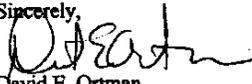
8

The draft SFEIS should list Williams Pipeline and B.C. Hydros' pipeline accidents over the last ten years. Williams has already had two spectacular pipeline explosions in Washington State.

9

In conclusion, the proposed GSX pipeline project puts Washington's resources at risk with no benefit for Puget Sound or the State of Washington. The project is not needed. As such, the no-action alternative represents the wisest choice.

Sincerely,



David E. Ortman
President



RECEIVED

OCT 27 2003

DEPT OF ECOLOGY

October 24, 2003

Sheila Hosner
WA State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

Dear Ms. Hosner:

People For Puget Sound is a citizens group with over 10,000 members in the Puget Sound basin, including Whatcom and San Juan counties. On behalf of our members, we have the following comments on the draft Supplemental EIS for the Georgia Strait Crossing project:

1. There is no longer an immediate need to build the natural gas pipeline. As noted in your dSEIS: "The pipeline is a component of the proposed Vancouver Island Generation Project (VIGP)... The GSX pipeline would supply gas to the power plant. On September 8, 2003, the British Columbia Utilities Commission (BCUC) denied the VIGP application and recommended that BC Hydro proceed with a new analysis of alternatives to supply Vancouver Island's energy needs. At this time, the effects of the BCUC ruling on the U.S. portion of the GSX project are uncertain." In light of that uncertainty and several issues we believe not adequately addressed in the dSEIS, we recommend that the State of Washington would best serve its citizens by not approving the Washington state portion of the project until such time as there is a compelling and necessary reason to construct the pipeline.
2. Seismic risk: We find the draft SEIS discussion of the impacts of seismic activity in the marine portion of the pipeline route inadequate. To say that, if the pipeline were to be damaged due to seismic activity in the marine environment, "most gas would bubble to the surface and escape to the atmosphere" and that "Pressure-sensitive shut-off valves on both shores could be remotely or locally operated to isolate the ruptured marine segment" and that "The volume of confined gas would escape to a point where equalized with external pressure" does not address the fundamental issue of why place such a pipeline in an area where such damage might occur.
3. Horizontal directional drilling (HDD): The proposal to avoid environmental impact in the Cherry Point Aquatic Reserve by using the HDD method is not adequately discussed in the dSEIS. It is not adequate to say, "GSX has concluded that the HDD shore approach at Cherry Point is achievable with nearly 100% probability of success and is the primary and preferred method for the GSX shore crossing." There is no documentation provided that demonstrates similar application of the HDD method in similar environments to justify the claim of "nearly 100% probability of success." Further discussion:

1

2

3

MAIN OFFICE	NORTH SOUND	SOUTH SOUND
911 Western Avenue, Suite 500 Seattle, WA 98104 (206) 382-7007 fax (206) 382-7006 people@pugetsound.org	407 Main Street, Suite 201 Mount Vernon, WA 98273 (360) 336-1931 fax (360) 336-5422 northsound@pugetsound.org	1063 Capitol Way South, Suite 206 Olympia, WA 98501 (360) 754-9177 fax (360) 534-9371 southsound@pugetsound.org

Ms. Sheila Hosner
Department of Ecology
Page 2

(Section 3.3.9) describing the method does not address where the method has been used successfully and with minimal impact in similar environments.

- 4. Marine species: The effects of sediment during construction and in the event of a pipeline break are not adequately addressed. Citations provided are limited in respect to marine species and do not address their respective life histories—larval, juvenile, and adult-- in the nearshore and subtidal environments. 4
- 5. Effect on fishing: According to the dSEIS, "GSX-US recognizes that any project activities that significantly affect marine biota also have the potential to effect commercial and recreational fisheries." The effects of turbidity and noise on the marine biota are not adequately discussed in the dSEIS. GSX-US's discussions with commercial fishers and crabbers, as recounted in the dSEIS, are limited to discussions with non-tribal fishers. Treaty tribes with Usual and Accustomed Areas in the proposed pipeline route are co-managers of the harvestable resources. The dSEIS is inadequate in not assessing the social and economic impact on treaty tribe fisheries. We do not find sufficient reasons provided in the dSEIS to conclude that "With the use of specialized construction, and incorporation of proposed mitigation, significant adverse impacts would not be expected." 5
- 6. Leak detection: We find very little comfort in knowing that the pipeline would be monitored from the leak detection center in Salt Lake City, Utah. 6
- 7. Shorelines Management Act: The dSEIS glosses over why the construction and operation of the GSX pipeline furthers the goals and policies of the Shoreline Management Act and enhances these shorelines of statewide significance. The proposed project provides little benefit for the state or the citizens of Whatcom and San Juan counties. We believe the SMA requires that projects that affect shorelines of statewide significance should be held to a high level of consideration for long-term public benefit and not, as seems to be the case for the GSX pipeline, short-term opportunity and convenience. The long-term public benefit of this project has not been demonstrated in the dSEIS. 7

We appreciate this opportunity to comment on the draft Supplemental EIS and look forward to your response.

Sincerely,



Mike Sato
North Sound Director

Wednesday, October 29, 2003

FW: Georgia Strait Crossing Project-Comment
Letter

Page: 1

Subject: FW: Georgia Strait Crossing Project-Comment Letter
 Date: Tue, 28 Oct 2003 11:28:58 -0800
 From: "Hosner, Sheila" <SHOS461@ECY.WA.GOV>
 To: "Richard Butler (rbutler@shap.com)" <rbutler@shap.com>

GSX comments

-----Original Message-----

From: Gordon Scott [mailto:gordon@whatcomlandtrust.org]
 Sent: Friday, October 24, 2003 4:01 PM
 To: Hosner, Sheila
 Subject: Georgia Strait Crossing Project-Comment Letter

Dear Ms. Hosner:

The Georgia Strait Crossing (GSX) project proposes to construct and operate a natural gas transmission facility at Cherry Pt. in Whatcom County. This reach of Georgia Strait shoreline is one of the last and largest undeveloped sections of natural shoreline in Northern Washington and is adjacent to the publicly owned Cherry Pt. Aquatic Reserve. Currently there is no public access to the public tidelands at Cherry Pt.

There are 135 miles of saltwater shoreline within Whatcom County, but only 7% of this total shoreline is open to the public. For 15 years Whatcom Land Trust, in cooperation with Whatcom County Parks and Recreation, has been actively involved in working to increase public access to public shorelines, including the Pt. Whitehorn-Cherry Pt. area. Increasing public access to shorelines in Whatcom County is a major element of both the County's Comprehensive Park and Open Space Plan and the County's Growth Management Plan.

Last year representatives of Whatcom Land Trust and Whatcom County Parks established the feasibility of providing public access at the GSX site at Cherry Pt. with one of the project partners. A small vehicle parking area and trail access to the beach were easily located on the GSX property well away from the proposed pipeline facility.

1

We strongly recommend that the Department of Ecology require that GSX provide a public access easement to the beach as a condition of their shoreline permit.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Gordon Scott

Conservation Director

Whatcom Land Trust

41

Sheila Hosner
WA State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

October 24, 2003

Dear Ms. Hosner:

Thank you for this opportunity to comment on the Department of Ecology DSEIS for the Georgia Strait Crossing Project. RE Sources, a membership-based environmental education and advocacy non-profit in Bellingham has a great interest in this project, in Cherry Point, and in the Georgia Strait. Through RE Sources North Sound Baykeeper program, RE Sources advocates for marine habitats and shorelines in Whatcom and Skagit County. In January 2002, RE Sources submitted comments on FERC's DEIS.

RE Sources takes the opportunity to comment here on both FERC's FEIS and Ecology's DSEIS. FERC's FEIS lacked meaningful analysis in parts of its document, and has not addressed many of the comments made in the DEIS. Unfortunately, Ecology did not ask for further clarification on some portions of the FERC DEIS which were inadequate. We hope that Ecology will take into consideration both the comments on the SDEIS, as well as on the FERC FEIS.

We find that the main shortcomings in the project as outlined are as follows:

- 1) There has been an insufficient needs and alternative analysis in FERC's FEIS. The FEIS states that the various alternatives that were reviewed were rejected based on difficulty.

safety, environmental harm, or cost. However, those reasons could easily be rebuked by a proponent of the alternative projects, and we could say that the GSX project must be rejected out of hand due to environmental or safety considerations, as well. Clearly a more objective weighting of the evidence is needed. The DSEIS outlines the potential for the Terasen alternative, which is clearly an environmentally superior alternative. However, nowhere in the document, does the DSEIS declare that the Terasen alternative is superior. Given the evidence, we question why this judgement was not made.

1

2) The safety considerations recommended by federal and state groups, and others, were rejected in the FERC FEIS. The proposed project, if allowed, will run through sensitive habitat and near residences. To not afford this community, which has suffered from pipeline failures and accidents, the highest level of consideration and protection, is unconscionable.

2

3) There will be many environmental costs associated with this project. One cannot run a pipeline through wetlands, streams, and a marine aquatic reserve without some cost being incurred to the environment. One cannot run a pipeline near sensitive habitats containing endangered or declining species, such as the marbled murrelet, bald eagle, rockfish, Cherry Point herring, and orca whale, without some cost being incurred to the environment. One cannot run a pipeline that disturbs 588.7 acres of land, 227.9 permanently, and 47.4 acres of marine environment, 20.2 permanently, and constructs a glory hole in the marine environment that displaces 2000 cubic yards of sediment and is 172 feet long without incurring environmental costs. The proponent plans to perform the construction for the project in the least damaging season and to mitigate for some of these costs. There is no mitigation plan that can be sufficient when faced with the fact that the project is unneeded.

3

ALTERNATIVES AND NEED ANALYSIS

There does not exist in the section titled, “no action or postponed action alternative”, an analysis of need for natural gas. There is no quantitative—or qualitative- discussion of market

4

demand on Vancouver Island. Without this documentation, there is no justifiable reason to build a new pipeline.

4

Additionally, discussion of meeting electricity needs through an upgrade in the existing cable system or through cogeneration at mill sites (NorskeCandada proposal) has not been factored into the need analyses. It has been stated that the purpose of this project is for a natural gas transportation system, and that need or demand will be based on a contract for the gas. However, we find that a contractual relationship is not sufficient to show need or demand, especially in light of these other means available to obtain electricity.

5

In the FEIS, the following is stated, "The purpose of the proposed GSX project, including both the United States and Canadian components, is to provide a transportation system for natural gas to supply the growing demand for natural gas on Vancouver Island. In particular, the GSX system would transport natural gas for Powerex to two new electric generation facilities on Vancouver Island."

Additionally, in response to a comment submitted by RE Sources on January 30, 2002, the FEIS states, "As described in the FERC's preliminary determination, on non-environmental issues (issued on March 13, 2002) GSX-US would be required to demonstrate that demand for natural gas exists by executing a contract for the level of service and for the terms of the service represented in the precedent agreement with Powerex prior to commencing construction."

There no longer is a contract with Powerex, and the Vancouver Island Generation project has been denied by the British Columbia Utilities Commission. Therefore, what is the justification for this project? If there is a new justification, then the project is being changed substantially, and an amended EIS, and additional public comment period are needed.

6

Further, it seems that demand for natural gas cannot be ascertained by executing a contract. Executing a contract as mentioned, may show demand for gas, but it may also just show

speculation on the demand for gas. A better method is needed to show actual demand for natural gas.

Further, the FEIS states, "GSX-US states that the project is needed because the only transportation system for gas delivery to Vancouver Island is through pipelines operated by Centra. Centra's system does not have sufficient capacity to transport the additional volumes from the mainland to serve the long-term fuel requirements of the new power plants." This supposition is erroneous as described in the alternatives analysis in both the FEIS and the DSEIS. Centra does have sufficient capacity to transport the additional volumes from the mainland. Thus, by this argument, need has not been shown, and the project should not be allowed.

7

The FEIS states that the Centra expansions would "involve significant "environmental and engineering drawbacks" but does not analyze them sufficiently in comparison to the proposed alternative. The shortcomings include:

- 1) The need for the compressor stations are noted, but the estimated amount of air pollution coming from these stations are not compared with what will be emitted by the compressor station at Cherry Point. Additionally, there is no mention as to whether GSX-Canada will also have associated compressor stations.
- 2) The reference cited regarding the likely need for open cut drilling and for increased fuel consumption, Farquharson, 2002, is not given.
- 3) The reasons for choosing GSX as an environmentally superior alternative are not supported by the text. There is no evidence given that running pipeline through a new route in marine habitat is superior to running parallel pipeline in the same right of way through mountainous terrain (estimated to be only 29 miles of 161, in Centra, case1).

- 4) Comparing the number of named water bodies to be crossed, which vary in length, sensitivity, and type is not a useful comparison, but is one of the only quantitative comparisons offered.
- 5) A table, such as that listed in 4.2.2-1, that quantitates parameters for GSX and BC gas system alternatives, should also include the Centra alternatives. Additionally, the table would be more useful if it showed the number of compression stations needed, estimated amount of pollution from the compression stations, miles of marine waters crossed, miles of low, moderate, or high seismic / liquefaction hazard crossed, miles of sensitive habitat crossed, etc, and estimated cost.
- 6) There is no discussion as to why the same environmental constraints are not weighted equally in the GSX project and in the alternatives. The constraints, such as routing pipeline in a high liquefaction zone or in sensitive marine and freshwater areas, are seen as impediments in the alternatives, but not in the GSX proposal. If there are real differences in the liquefaction hazards or sensitivity of habitats, these must be discussed.
- 7) There is no citation given for cost estimates of the different projects, In fact, it is difficult to imagine that it was possible to estimate costs based on the fact that so much detail about the alternatives was not known.

The FERC FEIS states that the BC gas system alternative via Tsawassen does not appear to have a “clear environmental advantage over the GSX project”, but it is comparable: “Adoption of either the GSX project or the BC gas system alternatives would involve a trade-off of environmental impacts.” Given these statements, the FEIS needs to look in more detail at the BC gas system alternative, to adequately assess environmental impact. The BC gas system alternative would obviate the need for a U.S. portion of the natural gas pipeline. In that, alone, it is preferable, since the natural gas is designated for Vancouver Island, not for the U.S.

The two alternatives listed in the DSEIS both appear to be more environmentally responsible than the proposed GSX project. One of the proposals, the NorskeCanada co-generation project, is considered under the No-Action alternative since it does not function to transport natural gas. The possibility for it to deliver electricity and to affect the demand for natural gas, however, should be factored into the need analysis.

The Terasen pipeline proposal appears to be preferable to the GSX proposal for the following reasons:

1) The pipeline corridor already exists, and it exists within Canada, the place from which and to which the natural gas will be delivered. Because the pipeline corridor already exists, we can expect that impacts to sensitive habitat will be minimal

2) Only 45.7 miles of pipe will need to be laid in total and these will be twinned. In the GSX proposal, 84.5 miles of pipeline will need to be newly routed.

3) No new marine pipeline work would be needed, whereas, 41 miles of pipeline will be laid down in the GSX proposal.

4) Terasen's existing pipeline corridor has already been sited based on geotechnical, environmental, land use, and property ownership considerations, that are consistent with current route selection techniques.

5) Terasen's expansion will require approximately 40 acres, for its 3 compressor stations and liquid natural gas facility (LNG), and an additional 300 acre protective buffer around the LNG, that presumably would be left natural. The GSX-US portion will disturb 588.7 acres of land, of which 227.9 acres will be required for permanent operation of the facility. In the US marine portion, 47.4 acres will be disturbed and 20.2 of these will be permanently used for operation of the pipeline. The amount of land and marine habitat that will be disturbed by the GSX proposal is phenomenal, especially when one compares it to the Terasen proposal. (Note, that the comparison numbers here are between the entire Terasen proposal and only the GSX-US portion of the GSX proposal)

SAFETY

An unsafe pipeline is both a hazard to human life, infrastructure, and the environment. As regulators of the environment, please consider what harm an unsafe pipeline can bring to our flora, fauna and native habitats.

Comments from the Washington Utilities and Transportation Commission (WUTC), dated 10-29-2001, were concerned with safety and they were nearly all rebuked. This disregard for safety and for state concerns is alarming. It does not give the public any comfort or security to know that this pipeline will not be operated and inspected under the highest safety considerations.. Noted in the WUTC comments were the following:

- 1) The WUTC recommended that the pipeline operate at a hoop stress below 30% specified minimum yield strength because pipelines that operate like this generally do not fail catastrophically and provide greater public safety. The FEIS states that the pipeline will operate within the law, but did not address its hoop stress, which by law, can operate at a hoop stress of 72%.
- 2) The WUTC asked that the pipeline be odorized in places near homes and businesses. Again, the FEIS stated that the pipeline would operate within the law and that odorization was not required.
- 3) A high susceptibility to corrosion in Whatcom County was noted and the WUTC requested that cathodic protection be installed within 90 days. Once again, the FERC FEIS states that the pipeline would operate within the law, and that cathodic protection would be installed within one year.
- 4) WUTC outlined a four point internal inspection plan to assure the safety of this pipeline. Again, it was rebuked.

- 5) WUTC further outlined a four point program to evaluate and mitigate the threat of a catastrophic failure near residences. Three of the four points were not addressed in FERC's reply.

RE Sources notes that in response to its comments (1-30-2002) on pipeline safety, that the FERC FEIS did acknowledge that a high percentage of pipeline accidents were attributable to corrosion and construction/material defect. In light of this knowledge, the refusal to accept WUTC's recommendations appears to demonstrate disregard for this community and its safety.

LACK OF INTEGRATION OF U.S. /CANADIAN ENVIRONMENTAL REVIEW

The FEIS does not address the comments by the EPA (2-4-2002), that stated that Canadian analysis should be included in the FEIS. Sec 1.5 was amended to give a brief overview of the review/public comment process in Canada, but it does not give specifics on decisions made or analyses on the Canadian side. Canadian analysis does not appear to have been integrated into the FEIS.

8

LACK OF ECOSYSTEM SCALE ANALYSIS

While the FEIS does include discussions of impacts on specific areas (e.g. Cherry Point area), it does not appear to have been revised to address wider, ecosystem scale affects, as requested in the EPA comments (2-4-2002).

EPA (2-4-2002; FA1-12) explicitly asks what the impacts will be to sensitive areas if alternatives were pursued. This question is not addressed in the FERC FEIS at all.

Regarding the specific example of Alden Banks, is 0.7 miles far enough away to negate risks from catastrophic spills or other long-term effects? In regard to other sensitive and/ or productive areas, is the pipeline routed through them or at a sufficient distance from them? How has "sufficient" distance been calculated and is it justified?

IMPACTS TO WETLANDS

We concur with EPA's comment (2-4-2002) that a 404(b)(1) analysis on wetlands is needed. FERC's response did not address whether the proposed route did the least harm to wetlands. The response said that mitigation measures had been discussed and that the Corps was a cooperating agency with FERC. However, this still does not address the main issue that the "EIS must demonstrate that impacts to waters of the United States, including wetlands, have been avoided, minimized, and mitigated (in that sequence), consistent with the Section 404 (b)(1) guidelines". Please address why a 404(b)(1) analysis was not made part of the EIS. It is stated that 404 permits will be needed prior to construction. Will the requirement to show that the least damaging route has been selected be enforced then, at that late date, when plans have been made nearly final?

11

SEISMIC ACTIVITY

We concur with EPA's comment (2-4-2002) that the quoted 10% chance for seismic activity to exceed design parameters over 50 years, is too great. The FERC FEIS response makes a distinction between design parameters and design standards, but does not give the likelihood that seismic activity would exceed the design standards. This information is needed before decision-makers and the public can assess whether the pipeline meets their safety and comfort level. Additionally, WA DNR (1-31-2002) recommended that the design standard of 2% in 50 years be used as occurs in critical facilities. This design standard was rejected in the FEIS.

12

In addition FERC's states in its response that potential environmental impacts from a pipeline failure are discussed in section 3.1.3. However, this section only includes discussion regarding seismic and liquefaction hazards. It does not discuss the environmental or human health and safety consequences of those hazards. Impacts from potential seismic events should be discussed in the same level of detail as the potential effects of construction and operation. There is also no discussion of the GSX-US' mitigation plans should a pipeline failure occur.

No information is given on the number and distance of free spans that the pipe would overlay, if any. Nor is any information given on how seismic activity would affect the pipe that overlays them.

40 YEAR LIFE SPAN

The GSX project is a large project with numerous environmental costs. The environmental costs do not seem warranted for a project whose life span is very short.

13

MARINE OFFSHORE SPILL PLAN (Appendix F)

The spill plan which has been included, in part, to minimize the harm from any potential spills, to marine animals, especially those that are endangered or threatened, is a needed component to the GSX project plan. Two additional components are needed for this spill plan to be most effective.

14

- 1) The plan needs to be implemented for both GSX-US and GSX-Canada.
- 2) Operators of ships, barges, and heavy equipment must be knowledgeable and trained as to how to handle any spill. Many plans go unutilized during a time of stress, unless personnel have already been thoroughly trained.

CUMULATIVE IMPACTS

Cumulative impacts for marine vegetation should be assessed as requested in the comments from WA DNR (1-31-2002). The FEIS response to the request is disingenuous as it states that post construction surveys will be recommended, but in the revised EIS, these post-construction surveys are only recommended if the HDD crossing method is not used. Even if the preferred HDD method is used, its use may have long-term impact, specifically from the construction of the glory hole.

15

IMPACTS FROM THE GLORY HOLE

Has there been pollutant and metal analyses done for the sediment that lies in the glory hole excavation site? Because this is an industrial area, there is the potential for pollutants to be released from the drilling and dredging operation.

16

CONCERNS REGARDING GROUND FISH

RE Sources finds that its comments to FERC (1-30-2002) were not addressed. Specifically, note that our populations of declining groundfish, comprise slow- moving and territorial species. These comments are reprinted here for your response.

“In addition to Alden Bank, the proposed route crosses other important fishing areas (both for tribal and non-tribal fishers). Sucia Island and Patos Island are historically productive fishing grounds for LingCod and Halibut and may be adversely affected by both construction and operation of the pipeline. It also passes close to a San Juan County Marine Protected Area (a groundfish recovery zone) just north of Waldron Island. The assessment of potential impacts to groundfish included in this DEIS is inadequate. Stating that the pipeline will not adversely affect these species because they “can swim away” is close to absurd. There does not appear to be any background documentation of such statements. Data must be provided about the species types, diversity, and abundance of groundfish and other fishes in the area. Certainly, there is a strong potential that these fish will be negatively impacted during construction and operation because groundfish are slow moving and very territorial. It cannot be assumed that they will swim away, even in high turbidity waters or when being smothered by settling sediments that have been disturbed during the trenching operation. They are known to protect their territories and to show little mobility, particularly during the adult phase of their life, which can last many years. These are long-lived fishes that, because of their long life span, tend to produce fewer young per reproductive cycle. Pipeline impacts could greatly impact individuals, reproduction, and hence the local population, which is currently depressed.”

17

UNDERWATER NOISE IMPACTS

RE Sources also finds that the FERC EIS addressed in some detail the underwater noise impacts that operation of the pipeline would have on various marine animals. However, the construction operation was not described in any such detail. Missing were the expected frequency and decibel analysis that might be expected from construction, and an analysis of how various marine animals would respond to those levels. Also missing, is an estimate of the length of time, in both days and hours per day, that construction will occur.

18

FRAGMENTATION OF FOREST STANDS

We find that the analysis of fragmentation of forest stands in the DSEIS is not sufficient. To assert that fragmentation of one of the stands is acceptable because some of the trees are newer growth is wrong-headed. Running a pipeline through the forest stand will permanently fragment it whereas allowing continued regrowth of the stand will allow it to become better habitat than it is currently. We suggest that the proposed route bypass this stand.

19

Thank you for this opportunity to comment. RE Sources respectfully asks that this project be postponed indefinitely, due to insufficient need, better alternatives, and concerns related to the environmental and safety.

Sincerely,

Wendy S. Steffensen

North Sound Baykeeper

RE Sources for Sustainable Communities



**San Juan County
Marine Resources Committee**

PO Box 947
Friday Harbor, WA 98250
Email: planning@co.san-juan.wa.us
Web site: www.co.san-juan.wa.us/mrc/index.html

RECEIVED
OCT 27 2003
DEPT OF ECOLOGY

October 22, 2003

Sheila Hosner
WA State Department of Ecology
3190 160th Ave. SE
Bellevue, WA 98008-5452

Re: Draft Supplemental Environmental Impact Statement – Georgia Strait Crossing
Natural Gas Pipeline Project

Dear Ms. Hosner:

There are several issues that are skirted by the present superficial consideration of impacts. This is despite our several efforts to elevate these points earlier.

- Biological Preserve
- Geomagnetic Influences
- Noise Impacts on Fishes
- Bald Eagle Territories in the San Juan Islands

Biological Preserve

Not only are these waters of statewide significance, they are by the Washington Administrative Code a Biological Preserve (the only marine preserve in the State assigned specifically to research and education). Both the process of pipeline installation and its subsequent operational hazards are tangible threats to the integrity of the Biological Preserve. This is because of potential damage to harvestable organisms, and species essential to research and education, caused by noise and pollution and also from alterations to topography that could influence unfavorably the migrations and crucial behaviors of marine organisms.

1

Geomagnetic Influences

The installation of a steel pipeline will certainly create a local magnetic anomaly along its length that could disorient any organisms that use geomagnetic cues for their onshore-offshore migrations in their natural life-history cycles. The fact that magnetic cues are only now becoming known (and documented in published work*) as factors in the migratory behaviors has emerged from research centered in part at Friday Harbor Laboratories. This absolutely should be researched carefully prior to any permanent installation of a large iron pipe across the Straits. It would be equivalent to placing an

2

iron pipe beside the compass of an airplane or ship, and expecting the craft to proceed on its course accurately. In this case, any migrating organism that approaches the pipeline while following benthic cues and using also an internal geomagnetic compass (e.g., crabs, sea slugs, fish, etc.) could become disoriented.

This issue should be properly researched by field work and appropriate lab experiments to determine the influence of metallic pipelines on magnetic orientation of organisms. The cost of this work must certainly be borne by the proponents of the pipeline.

Noise

The DSEIS fails to provide a thorough examination of the effects of anthropogenic sounds on fishes related to the construction and operation of the proposed pipeline. In most cases, the sounds produced by humans are relatively low in frequency, with the bulk of the energy below 1,000 Hz. Thus, these sounds are within the hearing range of fishes and so have the potential to affect fish as well as marine mammals. Essentially, all fishes are able to detect sounds within the frequency range of the most widely occurring anthropogenic sounds.

Because fishes live in a naturally "noisy" environment and because they have probably evolved to gain environmental information from this noise, anything that hampers their ability to detect biologically relevant signals will have a potentially deleterious effect on their survival and thus the health of fish populations. For example, responses to sound could affect behavior extensively and result in the fish leaving a feeding ground or an area in which they would normally reproduce or in some other way affect long-term behavior and subsequent survival and reproduction. Another behavioral effect might occur if the increased ambient noise prevented fish from hearing biologically relevant sounds. This interference, called masking, is a consequence of noises being in the same frequency range as communication of other biologically relevant sounds.

While it is hard to predict the consequences of changes in stress levels on fish, a temporary loss of hearing could mean that a fish loses some ability to detect predators or prey, communicate acoustically, and/or determine the structure of the acoustic environment. Clearly such effects would alter the survival of a fish.

Longer-term effects are also possible. Because the sensory cells of fishes are virtually the same as found in terrestrial vertebrates, it is likely that exposure to loud sounds might permanently deafen fish and, again, decrease their chances of survival. Although we most often think in terms of very loud sounds as having the most potential effect on animals, including humans, it is well documented that longer exposures to any anthropogenic sounds may also affect the health and well-being of a human or other animal. Thus, we need to be concerned about the effect on fish under long-term exposure to sounds that are significantly above the normal ambient acoustic environment in which they evolved, such as the sound made by gas at 2,000+ p.s.i. rushing through a pipeline. If nothing else, it will be important to ask the right questions to determine if the effects are present and important or if they have little or no long-term consequence to the

organism. To date, such questions have not been adequately answered in any document describing the potential impacts of the proposed pipeline.

Bald Eagle Habitat

Bald Eagle nesting, feeding and roosting territories occur throughout the San Juan Islands along the marine pipeline route. These are not acknowledged in the DSEIS nor is mitigation discussed necessarily relevant to the marine portion of the route.

4

DSEIS Adequacy

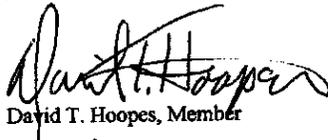
Finally, the DSEIS falls short of disclosing the environmental impacts evaluated by the environmental reports cited but barely summarized, if at all, in this public record. Because of this, it fails to communicate what is known and why what's known is enough to support conclusions that the adverse environmental impacts are either not significant or are mitigated to a level of nonsignificance. As long as the above impacts are not adequately evaluated, disclosed, and mitigated, compliance with the policy of the state for shorelines of statewide significance remains doubtful.

5

Sincerely,



A. O. Dennis Willows, Member



David T. Hoopes, Member



Kelley Balcomb-Bartok, Member

*Willows, A.O. Dennis. 1999. Shoreward orientation involving geomagnetic cues in the nudibranch mollusc Tritonia diomedea. Marine and Freshwater Behav. and Physiol. 32: 181-192.



STATE OF WASHINGTON
PUGET SOUND WATER QUALITY ACTION TEAM
 OFFICE OF THE GOVERNOR
 PO Box 40900 Olympia, Washington 98504-0900
 (360) 407-7300 FAX (360) 407-7333

October 25, 2003

Ms. Sheila Hosner
 Department of Ecology
 3190 160th Avenue SE
 Bellevue, Washington 98008-5452

Regarding: Comments on Draft Supplemental Environmental Impact Statement for the Proposed Georgia Strait Crossing Natural Gas Pipeline Project

Dear Ms. Hosner:

Thank you for the opportunity to comment on the Draft Supplemental Environmental Impact Statement for the proposed Georgia Strait Crossing natural gas pipeline project. I have limited my comments to the specific issues listed in Table 1-1 of the draft SEIS. The final SEIS should contain introductory information and references to ensure that decision makers are considering information on environmental impacts from both the FERC Final EIS and the SEIS.

Description of the Proposal and Alternatives

The SEPA Handbook encourages agencies to describe a proposal as an objective. This allows the SEIS to consider reasonable alternatives that will achieve the objective at less environmental cost. Allowing the proponent to define the proposal's objective narrowly may preclude the necessary consideration of alternatives. In this case, the proposal is to build a natural gas pipeline. One must assume the purpose is to serve energy needs in the area that would be served by the pipeline. One alternative should be to meet energy needs through conservation. Another alternative would be to generate electricity on the mainland and run underwater transmission cables, which may pose fewer environmental risks to shipping or marine life. The draft SEIS includes an alternative proposal to increase natural gas supplies to Vancouver Island.

In looking at Vancouver Island energy needs, one needs to consider the supply and need for both electricity and natural gas. The need for this natural gas pipeline proposal is reduced if new sources of electricity are provided through transmission lines from the mainland. If conservation reduces the need for either electricity or natural gas, the total need for natural gas could go down. It appears that the cogeneration proposal that might slightly increase natural gas use but greatly reduce electricity use, which would reduce the need for gas for electrical generation.

Ms. Sheila Hosner
October 25, 2003
Page 2 of 3

Given the inevitable and irreversible environmental impacts of a project such as this one even with the incorporation of reasonable mitigation, an additional overall mitigation measure would be to require that construction not proceed until the need for this project is firmly established.

2

Plants and Animals

3.5.3 Issue 2

The list of references does not constitute the summary of information called for in the issue. Many species of marine fish are seriously reduced abundance and small alterations in ecosystem conditions may cause further declines. Please include a summary of information in the final SEIS. Since these species were not discussed in the FERC EIS, the final SEIS should also identify any adverse impacts and discuss possible mitigation. Unavoidable adverse impacts should also be discussed.

3

3.5.8 Issue 7

The draft SEIS should contain an impact analysis and mitigation plan, not references to other documents. Please include a complete analysis in the final SEIS including adverse impacts, mitigation and unavoidable adverse impacts.

4

Reliability and Safety

3.6.2 Issue 1

The discussion does not fully address the Issue. Some valves can be closed from Utah, others must be closed by "local operations personnel." What is the availability of local operations personnel and how long would it take for them to respond if there is a rupture? How long might it take to stop an upland leak? Given that there will be no valves in the entire underwater segment, for various leak sizes indicate how long a leak would continue with gas bubbling to the surface and endangering fish and wildlife, marine mammals and surface vessels.

5

The draft SEIS lists some mitigating actions mentioned by the WUTC and essentially rejects them. That is inappropriate in the SEIS. A more balanced discussion of the pros and cons should be included so decision makers can consider what mitigation to require in approvals issued subject to SEPA.

Air Quality

3.11.2 Issue 1

The SEIS should present monthly average wind roses for each segment of the project area for which there is a significant difference, from Sumas to where the pipeline reaches Vancouver Island. Predominant winds differ significantly over the year. The wind patterns for the sites of the blowdowns mentioned in 3.6.2 should be presented so that the potential movement of gas from emergency venting can be considered.

6

3.11.3 Issue 2

Ms. Sheila Hosner
October 25, 2003
Page 3 of 3

The draft SEIS says that dispersion modeling is not provided because a PSD permit isn't required. SEPA requires a complete assessment of the cumulative impact of the entire project and must consider the impacts of an element of the project which might not require such a review as a stand alone project. The final SEIS should present dispersion modeling as called for in this issue. Adverse effects should be identified and mitigation considered. Decision makers must consider the cumulative impacts of the entire GSX project.

7

Thank you for the opportunity to comment.

John Dohrmann
Director of Government Affairs

October 24, 2003

Ms. Sheila Hosner
Department of Ecology
3190 160th Ave SE
Bellevue, WA 98008-5452

Subject: Draft Supplemental Environmental Impact Statement for the Proposed Georgia Strait Crossing Natural Gas Pipeline

Dear Ms. Hosner:

Thank you for the opportunity to comment on the proposed Georgia Strait Crossing natural gas pipeline project. Our main issues are included in this letter. Enclosed please find more detailed comments.

The Washington State Department of Natural Resources (DNR) is responsible for the management of state-owned aquatic lands, and specifically the aquatic lands being proposed for the Williams' gas line right-of-way. DNR is in the process of establishing the Cherry Point area as a state aquatic reserve (Cherry Point Aquatic Reserve). The objective of establishing an aquatic reserve is to protect and support unique aquatic systems and functions at the Cherry Point site.

DNR's interim policy for areas being proposed as aquatic reserves requires that future-leasing activities that will be authorized and prohibited within aquatic reserves will be established after the area is formally designated as an aquatic reserve. It also requires that the site-specific management plan has been adopted.

DNR is presently initiating the development of a management plan and supplemental environmental impact statement, through the State Environmental Policy Act (SEPA), for the proposed Cherry Point Aquatic Reserve. The management plan and the supplemental environmental impact statement are scheduled for completion in April 2004. At that time DNR will determine if the proposed GSX gas line can or should be sited at the Cherry Point Aquatic Reserve site and, if appropriate, the conditions for allowing this use.

If the approved use results in unavoidable impacts, appropriate compensatory mitigation will need to be determined, and are consistent with state and federal mitigation requirements. DNR is currently developing policy that addresses the use of state-owned aquatic lands for mitigation

1

Sheila Hosner
Page 2 of 2
October 24, 2003

activities. This policy requires that impacts realized on state-owned aquatic lands must also be compensated for on state-owned aquatic lands. In addition, the policy will detail additional requirements regarding appropriate mitigation activities on state lands, fees associated with these activities, and the long-term management of mitigation sites.

DNR requests that the project's proponent and the Federal Energy Regulatory Commission (FERC) consider this in their final plans for this project.

If you have questions, you may contact Steve Jennison, Orca Straits District Manager, at (360) 854-2833.

Sincerely,

Hugo Flores
ERC Coordinator

- c: David Palazzi, Aquatic Reserves Program Manager
- David Roberts, Orca Straits District
- Chad Unland, Orca Straits District
- Steve Jennison, Orca Straits District
- Fran Mc Nair, Aquatics Steward
- Loren Stern, Aquatic Resources Division Manager
- Carol Piening, Aquatic Resources Planning Section

Enclosure

1
cont.

General Comments:

Determination of Significance: If the NEPA FEIS is being appealed on adequacy, it seems counter-productive to adopt the full document. Under WAC 197-11-610(3)(b) it states that a NEPA EIS may be adopted if the, "...federal EIS is not found inadequate: (a) By a court; (ii) by the council on environmental quality (CEQ) (or is at issue in a pre-decision referral to CEQ)..." It would have been better to adopt the portions that were not being challenged.

2

Fact Sheet: If the BCUC ruling is uncertain, this project could be in a lengthy litigation. Permits/leases/authorizations may need to wait until resolution of the BCUC ruling. This needs to be made clear in the document.

3

Even though the stated alternatives are the (1) proposed GSX-US and Canada alternative, (2) Terasen Gas Alternative and (3) No Action (Norske/Canada) Alternative, the Draft SEIS does not treat the analysis equally so that comparison of impacts are difficult. Additional surveys, studies, research should have been done to allow comparison of impacts between the proposed alternative and the others. It appears that since the NEPA FEIS chose GSX-US as the preferred alternative, despite the analysis being inadequate in a number of areas (39 issues), the proponents do not see the need for further comparisons. However, a different conclusion may be reached if the full analysis, as proposed by the lead agency, was done. It is suggested that a matrix of each issue and each alternative be added to show comparisons between the alternatives.

4

It is extremely difficult to review the Draft SEIS when the document keeps referring to other documents that have the information. Even if the NEPA FEIS is available at Ecology's Bellevue office, the information is not readily available to the "agencies with jurisdiction". The entire SEPA document refers the reader to other documents that are not easily available. They do not summarize the information in many of those cases. For example, they reference Resource Reports 2, 3 and 6 but do not usually summarize the information, nor show where a copy is located. WAC 197-11-635(2) Incorporation by reference-procedures states, "Material incorporated by reference (a) shall be cited, its location identified, and its relevant content briefly described; and (b) shall be made available for public review during applicable comment periods (emphasis added). The Resource Reports could not be located, and Ecology's on-line link to reach the Final EIS at the FERC's website doesn't allow immediate access to the document. They do include the Geotechnical Investigation (GI) on seismic information but the study was performed around Saltspring Island in Canada. There is no information related to the United States side.

5

It is not clear who owns what land throughout the length of the proposed pipeline. An ownership map with the route overlaid on top would be helpful.

6

Specific Comments

1. Same page. The document states that any additional surveys would be conducted after the HDD is completed. Prevention measures cannot be implemented if the activity has already occurred. 7
2. Page 38. Figure 3.2-1. While the faults are identified (and discussed in the text), the pipeline route is not clearly overlaid on the photograph so that the reader can visually see the pipeline route in relation to the fault lines. 8
3. Page 39. Issue 1. 3.2.2. While the impacts of earthquakes overall may be the same, it is not clear if the soils/bedrock in both the marine and the freshwater areas are identical to those they analyzed for Canada. The assumption is that they probably are not completely the same so that the impacts may not be identical either. One of the potential impacts is that if they horizontally drill in the area of fault lines, they could have the bed material collapse on the bit (per Bob Suda, DNR, Division of Geology & Earth Resources). While there are ways to address this problem, they should state briefly how they would deal with this issue. 9
4. Same Page. In addition, there are herring beds on the U.S. side of the project area and probably eelgrass although the document doesn't identify what vegetation is located along the pipeline areas. If there was scouring, there would be scouring of any shellfish beds in the area. If there is an earthquake, (particularly a strong one), it would be difficult to get near the area of impact to shut off the valves locally. The shut-off valves located in Utah may not be activated in a timely manner. 10
5. Same Page. Certainly, a contingency plan for handling an emergency needs to be provided. In addition, preliminary mitigation plans for any habitat and species losses due to a seismic disaster should be developed with the ability to create more specific mitigation as needed. 11
6. No discussion has been made as to whether a ruptured line would cause impacts to fish or shellfish. The document should have a brief discussion about temperature increases, pressure changes, and sedimentation drift over shellfish beds and aquatic eggs. While this may not be a concern, SEPA requires disclosure if there are or are not impacts. The document needs to briefly summarize various information from references that have been reviewed. 12
7. Page 40. Significant unavoidable impacts. They do not address unavoidable impacts. Even though the proponents assume there will most likely not be significant unavoidable impacts, they should acknowledge the potential for a worst-case scenario whereby a severe earthquake collapses the cliff and severely ruptures the pipeline. 13

8. Page 54-55. If you analyze one impact with one alternative, you should compare the impact with the other alternative. The Terasen Gas Alternative seismic impacts were not compared with the GSX-US impacts). 14
9. Page 41. Issue 2. 3.2.3. An estimate was given that scour of first category water bodies would be 3-5 feet. It is unclear whether this was calculated based on Terzaghi (1936), or whether the calculation was from some other source. 15
10. See Comment #9 above. If there are no scour effects from the Terasen Alternative, this should be stated. 16
11. Page 42. Issue 1.3.3.2. Affected Environment. The document needs to spell out which waterbodies may be affected and the type of water bodies, their current status, and potential for flooding, scouring, shifting on the floodplain, and how degraded they currently are as to land use around them (including 303d listings) /riparian structure, streambed materials, i.e., shale, and a brief description as to where the pipe will cross/lay parallel to these water bodies. Are the water bodies, where the pipe will occur, in rural areas, urban, agricultural land, and forestland? 17
12. Same Page. Under impacts, there should be discussion concerning the 303d listed streams that the pipe will impact. 18
13. Page 43 and 46. If the trenchless process fails, does that mean the borer is stuck, the borer couldn't continue? The document needs to briefly state situations that constitute "failure". The types of failures need to be spelled out: i.e., the borer not able to penetrate the substrate, the borer bit breaking, the substrate collapsing on the borer, etc. Discuss how a 2nd or 3rd attempt would be proposed. There needs to be discussion of potential mitigation if more than one site needs to be drilled due to failure. For instance, there will be pits to hold bentonite, other additives, and removed bed material slurry. Will more than one pit be used? If so, what are the impacts and mitigation for those impacts? Mitigation should be discussed, even if it is just using BAS measures to prevent damage to streams and land. 19
14. Page 44. Unavoidable impacts: No discussion was included so it is impossible to determine if the unavoidable significant impacts would be unlikely. 20
15. Page 45. 10% or less dewatering could be significant if there are fish in the stream. It is questionable whether this technique would be allowed by WDFW. Usually, the water is piped around the area that needs to be dry (and work occurring only during the work window which is during the dry season). If that is the method, then it needs to be clear. 21
16. Page 45. If the Terasen Alternative will use the same method or something similar and is allowed in Canada, this should be stated. 22
17. Additional discussion should include, even if briefly, the following the references cited:

- a. What are the impacts on herring eggs by bentonite and other additives that often are used in the boring process? 23
- b. What about any shellfish being covered over by the clay material? 23
18. Page 47. Issue 3.3.3.4. What about the open cut over freshwater streams? What contingency plans are there? 24
19. Issue 4.3.3.5. Page 49. It is doubtful that the trench method as described could receive an HPA from WDFW if these are fish-bearing waters or waters that flow into fish-bearing waters. 25
20. Issue 4. 3.3.5. Page 49. While clean gravels may be helpful, repairing the banks with native vegetation (i.e., willows, etc.) or other bioengineering repair should be undertaken. 26
21. Same Page. Other agencies must approve the mitigation measures if they involve a DNR authorization or a permit from WDFW, not just Ecology. The plan should incorporate information that may be needed by other agencies. 27
22. There should be a brief summary of what is in the wetland/riparian report rather than just refer to it. 28
23. Issue 5.3.3.6. Page 50. The document differs in methods of how the upland pipeline will be laid. Earlier in the document they discuss using trenches, and HDD. It states on Page 50 that bridges would be used to cross perennial streams. Perhaps a table at the beginning of the section, with references to each described methods would help to make the document clearer. 29
24. Page 52. The document does not say that it will only use the open cut method if the HDD method fails. This needs to be clear. See the previous comment. 30
25. Issue 6.3.3.7. Page 53. Until now, it doesn't state that work will be done in the dry. While the section discusses advantages of a flume crossing, earlier discussions seem to suggest the method of crossing may be a bridge, or trench. 31
26. Page 53. Explain why the volume of work area that needs to be dewatered is much less for flume crossings than for bore crossings and cite a reference. 32
27. Page 53. If the water is pumped to a holding site, it will reduce the amount of water in the stream at least temporarily, particularly if the water seeps into the ground. 33
28. Issue 7.3.3.8. Page 57. If the site needs to be moved (e.g., "In addition, the dewatering structure can be moved to an alternate location if it is determined that the water is not being sufficiently absorbed by the surrounding area"), cite the potential "other site" or sites. 34
29. Page 58. If there are problems that require the site to be moved, they should identify mitigation for the impacts of the first site, and maybe the second site. 35

- 30 Page 59. Since we do not have access to the FEIS, we cannot review the information that they refer to in 3-70. (At Gulf Road, GSX-US proposes several measures as described on pages 3-70 and 3-72 of the Final EIS. Further protections.... (refer to page 3-70 of the Final EIS)). 36
31. Page 59. What about sediment disturbance to migrating fish? 37
32. Benthic organisms are assumed to repopulate in 1 – 2 years. During that time (impact period), there should be some mitigation to replace the 1-2 year loss. 38
33. Page 63. The document needs to discuss impacts to herring eggs. Bisson, et.al.'s study was performed in a freshwater environment. And, I think they came to a slightly different conclusion. The study quotes Newcombe and MacDonald, 1991: "Turbidity may be caused by suspended sediments such as silts or clays, or fine particulate organic material. Increased turbidities can be injurious to fish and aquatic life, particularly if conditions of high turbidity persist for a long duration (Newcombe and MacDonald, 1991). Effects on fish range from avoidance of highly turbid areas and reduced growth to direct mortality (Bisson and Bilby, 1982; Sigler et al., 1984; Cordone and Kelly, 1961). A high degree of correlation exists between elevated turbidities and high road densities and widespread, recent timber harvesting. Models based on the field data indicate that in disturbed watersheds, streams experience turbidities greater than 100 nephelometric turbidity units (NTU) for two to three months a year, whereas streams in undisturbed watersheds have such high NTU readings only two or three days in a three year period. There is a strong correlation between turbidity levels and suspended sediment transport (Lewis and Eads, 1996). It is expected that during storm events, discharges of sediment to watercourses may result in increased turbidity." 39
- Bisson, et.al.'s conclusions (1982) were as follows (Page 373, 1st column): "The results of our experiment suggested that coho fry should not be stocked when streams are carrying a high load of suspended sediment. Rather, they should be released when streams are clear or slightly turbid so that the fish have time to adjust to relatively low levels of suspended sediment and thus raise their tolerance to periodic turbidity increases during storms." "...the results of this study indicated that moderate turbidity increases over low background levels may not cause avoidance by juvenile coho salmon. However, acceptance of this conclusion should await testing of controlled, sediment-addition studies in natural streams." [This was a study designed around applications for fish stocking. The fish did avoid relatively high sediment loads, i.e., >70 NTU. The study indicated that coho move into turbid water when frightened, (sacrificing their physiological well-being for a "safety" reaction.)
- In addition Bisson, et al states: (Page 372, 2nd column, 1st paragraph) "Fright behavior was actually observed in more than four trials but the first two times it was noted the trial was aborted and the fish discarded." ... "We do not know what elicited the fright response among coho salmon acclimated to turbid water except to speculate that it was related to the sudden transfer into an environment where cover was lacking."

34. Page 63. The “no impacts” from sediment determination is misleading and the citing of the references was misinterpreted, using partial findings. If fish have an aversion to a sediment plume, it means they could be driven into marginal areas, areas where they are more susceptible to predation, and into areas already occupied, increasing competition. If they are not avoiding a moderate plume area, because of need for food, or out of fish stress, then they may have increased impacts to their physiology—changes in chemical balances. The references also do not deal with aquatics that can’t move or move minimally: See: *Effects of Suction Dredging on Streams: a Review and an Evaluation Strategy*, Harvey, Bret C. and Thomas E. Lisle, Fisheries, Vol. 23, No. 8, page 10: “However, not all benthic invertebrates can be expected to rapidly re-colonize disturbed areas. For example, many mollusks [freshwater mussels] have low dispersal rates ...and limited distribution in river systems...” This also would be true concerning any egg deposits. Harvey, et al’s article (quoting other references) also states that even slight sedimentation levels may interfere with finding prey (Barrett, et al. 1992, and predator success (Berg and Northcote, 1985). 40
35. See the following: Page 68, Whitman, Et. Al., (reference cited by proponent), “Thus, while under normal conditions few salmon will swim up a non-natal river, sufficient degradation of water quality apparently can induce such behavior.” (Last sentence). Other statements, page 68, 1st column, 2nd paragraph, “ ...show the presence of ash reduced the preference for home water.”...” Thus, the reduced home-water preference...was due to ash avoidance.” 2nd column, “Previous studies indicate that under some conditions, salmon will stray into and spawn in non-natal rivers if their home river is altered sufficiently by suspended solids (Sumner and Smith 1940; IPSFC 1964.). 41
36. Page 65. Ecology requested that the proponents summarize non-listed species. Instead, they cite references. Reviewers should not have to round up the references to find out the answers. While the whole document does not need to be included, just referenced, information that they are using does need to be summarized. WAC 197-11-635 Incorporation by reference procedures (2) “Material incorporated by reference (a) shall be cited, **its location identified, and its relevant content briefly described**; and (b) shall be made available for public review during applicable comment periods. [Emphasis added.] 42
37. Issue 2. 3.5.3. (Page 65). This section on impacts and mitigation, is inadequate. The document needs to discuss if there will be impacts to other species of fish, mollusks, egg casings, and other aquatic species. 43
38. Issue 4. 3.5.5. Page 71. Again, the document does not summarize the information about noxious weeds used in a referenced document. 44
39. Issue 6. 3.5.7. Page 74. It doesn’t state where the relocation of the Cherry Point refinery was moved, how far away from the first site, and the type of vegetation at the new site? 45
40. Page 75. “Woody debris will be placed in the floodplains **of selected water bodies** [emphasis added] to increase biologic diversity...” The *Wetland and Riparian* 46

- Restoration Plan* is not available for review. Since they have made changes since the FEIS, it needs to be available. The document should specify which streams the proponent will do what to for mitigation. 46 cont.
41. While the DSEIS is fairly good for documenting procedures/methods for wetlands, (See page 75-77) it leads a lot to be desired for other agencies' permit requirements. The assumption is that Ecology worked out requirements prior to issuance of this document. However, I don't think the writers spent much time thinking through other impacts that other agencies have authority to regulate. 47
42. Issue 7. 3.5.8. Page 78. I disagree that the affected area needs no additional analysis. They need to state what the condition is now, so that review of impacts can be analyzed. 48
43. Page 78. The document mentions eelgrass concerns for the GSX-Canada portion, but then only says to refer to the FEIS and Resource Report 3 for the US portion. This SEIS is the document that needs to contain information to determine impacts to U.S. waters. 49
44. Page 78 (Section under GSX-Canada). The viscosifer agent also is a concern for the US portion. Without knowing what is in the area, it is hard to comment. 50
45. Page 81. Concerns at the marine pipeline exit from turbidity have not really been addressed. How will they control turbidity as the borer exits, how will be pipe trenching from the exit onward handle turbidity, marine soils disturbance, crustacean/fish impacts at the time of construction? 51
46. Page 81 (Issue 7; 3.5.8; marine vegetation and wildlife) It is questionable whether authorizations, permits, leases (permits) would be issued prior to consultation for mitigation. The document should state potential ways to mitigate for impacts that cannot be prevented by avoidance or methodology so that agencies could determine if the conditions they may include in their permits would prevent additional impacts. 52
47. Page 81. If they had to provide a detailed site-specific environmental management plan for Canada's environmental review, they certainly should do the same for the U.S. prior to construction, particularly for marine waters and about the HDD. A contingency plan needs to be devised if there is failure of the HDD. 53
48. Issue 9. 3.5.10. Page 88. The proposed pipeline right-of-way will require a forest practices permit from DNR. The Forest Practices Act, Chapter 76.09 of the Revised Code of Washington (RCW) rules and regulations will be applicable to this project. 54
49. Mitigation measures: Just because "The Applicant has already made significant efforts to follow existing utility alignments," it does not mean that additional mitigation should not be done. They did a much better statement for the Canada part, and I would think that they could do the same with the U.S. section. 55
50. Issue 1. 3.6.1 and 3.6.2. Page 91. Referring the reader to an application with FERC to answer a safety inadequacy (emergency delay response) does not provide additional 56

analysis. While the information may be included in the application, it was considered not sufficient in the FEIS; otherwise it would not have made the list of things to address in this supplemental. The items listed under mitigation make little sense unless the affected environment is discussed or at least summarized.	56 cont.
51. Page 92. If the “program” is being developed, how will we review it for adequacy?	57
52. Issue 1. 3.7.2. Page 98. No discussion was included under Land Use and Other Planning concerning the Aquatic Reserve.	58
53. Page 102. They state that they will use HDD methods to “mitigate” impacts to the reserve. While this reduces impacts, does it completely mitigate for the impacts?	59
54. Page 104. They list Nooksack R. and Terrell Creek as critical areas, but neglect the herring spawning beds—I think these are close enough to be included in critical areas.	60
55. Page 104-107. No mention of DNR’s requirements for authorization has been made. DNR’s mandate to manage state lands should be included in this section.	61

EXECUTIVE'S OFFICE

County Courthouse
311 Grand Ave. Suite #108
Bellingham, WA 98225

Pete Kremen
County Executive



October 24, 2003

Via email shos461@ecy.wa.gov

Sheila Hosner
Department of Ecology

Dear Sheila :

As the County Executive of Whatcom County, I am writing to comment on the Georgia Strait cross sound pipeline proposal. Public Access to the Beach at Point Whitehorn has long been a high priority of Whatcom County.

I urge you to condition any permit for the pipeline on the grant of an easement for public access to the beach at Point Whitehorn. Such access, including a public parking area, has been explored on the ground by the Whatcom Land Trust and one of the proponents of the project. A parking area and a trail for beach access can easily be put in place without in any way impeding the pipeline project.

Thank you for your attention to this important concern of Whatcom County, the only part of the United States through which the pipeline will pass.

Sincerely,

A handwritten signature in black ink that reads "Pete Kremen".

Pete Kremen
County Executive

Office (360) 676-6717

County (360) 380-1403

Fax (360) 676-6775

TDD (360) 738-



NORTHWEST
AIR POLLUTION AUTHORITY

1600 South Second Street
Mount Vernon, WA 98273-5202
Tel: (360) 428-1617 / Fax: (360) 428-1620

Serving Island, Skagit and Whatcom Counties

October 13, 2003

Sheila Hosner
WA State Department of Ecology
3190 160th Ave. SE
Bellevue, WA 98008-5452

RECEIVED

OCT 14 2003

DEPT OF ECOLOGY

Ms. Hosner:

This letter provides comments from the Northwest Air Pollution Authority (NWAPA) on the Washington Department of Ecology draft supplemental environmental impact statement (DSEIS) issued September 24, 2003. The NWAPA is the local air pollution control agency responsible for both reviewing the Notice of Construction Application for the Cherry Point compressor station and issuing a permit under the new source review regulations. We received an application in April 2001 from the Northwest Pipeline Corporation for this project. The application is being resubmitted since much of the information has to be updated.

Comment 1: The fact sheet on pages ii and iii list the permits required for the project and the agencies responsible for those permits. The Northwest Air Pollution Authority's Order of Approval permit covering air pollution issues should be listed here.

Comment 2: Table 1-2 addresses the requirement for "dispersion mapping" in Issue 2 of the Air Quality section. The description of the problem on page 3.11-2 uses the more accurate term "dispersion modeling" to describe the process whereby an applicant determines whether a project's toxic air pollutant impacts are below the acceptable source impact levels (ASILs). Although it is true, as stated in the proposed action, that the project is not subject to the Prevention of Significant Deterioration (PSD) permitting program and the applicant is not required to perform computer modeling of emissions under that program, the permittee must still perform this modeling for their application to the NWAPA. The applicant has hired a consultant to perform this modeling for both criteria pollutants (nitrogen oxides, carbon monoxide, sulfur dioxide, volatile organic compounds, and particulate matter less than 10 microns in size) and toxic air pollutants regulated under Washington Administrative Code (WAC) 173-460.

If changes to the DSEIS are made to the fact sheet, Table 1-2, and 3-11-2 and 3-11-3 incorporating our comments, Section 3.11 of the document, Air Quality, will more accurately reflect our agency's air quality permitting process. We appreciate the opportunity to provide these comments. If you have any questions, please call Annie Naismith at (360) 428-1617 ext. 225, or send an email to annie@nwair.org.

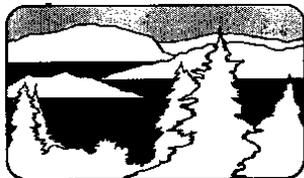
Sincerely,

James Randles
Director

E-mail: info@nwair.org

Website: <http://www.nwair.org>

Printed on 100% post-consumer, recycled paper



SAN JUAN COUNTY

COMMUNITY DEVELOPMENT & PLANNING DEPARTMENT
 135 Rhone Street • P.O. Box 947 • Friday Harbor, Washington
 98250
 360/378-2354 • 360/378-2116 • Fax 360/378-3922
 email: permits@co.san-juan.wa.us
 web site: www.co.san-juan.wa.us/permitcenter

October 24, 2003

Ms. Sheila Hosner
 Washington Department of Ecology
 3190 160th Avenue SE
 Bellevue, WA 98008-5452

RE: Draft Supplemental Environmental Impact Statement for the Georgia Strait Crossing Pipeline Project

Dear Ms. Hosner:

The San Juan County Community Development and Planning Department is in receipt of the Draft Supplemental Environmental Impact Statement (DSEIS) for the Georgia Strait Crossing Pipeline prepared by the Washington Department of Ecology on September 24, 2003. This department has reviewed the document and provides the following comments.

1. *1.1 Project Background:* Did the tap valve requested by OPALCO during the FERC environmental review process become part of the proposal? Residents of the San Juan Islands do not have access to natural gas service. Although the project does recognize the potential for expansion into other markets, the project currently does not specify a lateral link for future provision of natural gas service to our islands. We believe including a tap valve in the pipeline during the initial construction phase for future service to the San Juan Islands would be beneficial. Providing a tap valve now will reduce cost of retrofitting the pipeline with a tap valve in the future. In addition, retrofitting the pipeline will cause additional impacts to the sensitive marine environment since the marine environment will, once again, be disrupted during installation of the tap valve at a later date. This added disruption and its impacts to the marine environment can be avoided by installing a tap valve during the initial construction stage of the pipeline. 1
2. *3.2.2 Issue 1:* The DSEIS does not identify or discuss earthquake faults that run along the sea floor and potential seismic activity associated with these faults. Also, the DSEIS fails to recognize that San Juan County, in its entirety, is a Seismic Zone 3 in accordance with the Uniform Building Code (UBC). Being located in a Seismic Zone 3 classifies San Juan County as a category III geologically hazardous area and is subject to the Unified Development Code critical area regulations. The DSEIS does not specifically acknowledge or identify Seismic Zone 3 hazards, sea floor earthquake faults, or how the proposal intends to avoid or mitigate pipeline failure and respond to emergencies caused by seismic activity in the marine environment. 2
3. *3.6.2 Issue 1:* In order to track the progress of pipeline construction and to assure that federal safety standards are being adhered to, San Juan County requests copies of notices of field and structural inspections, leak surveys and other monitoring reports. In addition, we request notice of any violations that may occur during the entire course of construction and operation of the pipeline, as well as compliance dates. The document should include these requests as part of the mitigating measures. 3
4. *3.5.9 Issue 8:* The DSEIS fails to recognize bald eagle habitat associated with San Juan County and the surrounding marine environment. The pipeline is to be constructed within __ mile of Patos Island. Patos Island is a designated bald eagle territory and is occupied by several nesting sites. Due to the close proximity of pipeline construction activities to Patos Island and nesting sites, a habitat management plan should be prepared addressing impacts to bald eagle habitat and foraging areas. 4

October 24, 2003
Page 2

- The habitat management plan should also provide mitigating measures to assure protection of the habitat and foraging areas.
5. 3.7.2 *Issue 1*: The DSEIS does not fully identify land use regulations for San Juan County that apply to the proposal. First, the sea floor is considered an environmentally sensitive critical area subject to both the geologically hazardous area regulations as mentioned previously in this letter, and the fish and wildlife conservation area regulations for bald eagle and marine habitat. These standards can be found in Sections 18.30.120, 18.30.160.A.1 and 18.30.160.B.2.b of the San Juan County Unified Development Code (UDC). Second, the Shoreline Master Program policies and development regulations for Economic Development, Utilities and Environmentally Sensitive Areas have not been identified. The policies and regulations can be found in Sections 3.2.D, 3.4.D and 3.5.O of the San Juan County Comprehensive Plan, and Sections 18.50.080 and 18.50.350 of the UDC.
 6. 3.12.2 *Issue 1*: The lack of fully addressing all aspects of noise impacts on marine mammals prior to construction and operation of the pipeline is a concern. San Juan County, as well as other groups and individuals, has discussed concerns throughout the environmental process including review of the FERC DEIS regarding insufficient information and analysis of noise impacts created by this proposal. The DSEIS should include analysis of noise impacts on marine mammals including but not limited to the auditory and reproduction systems, especially for those species in a depleted status. The analysis should also address the cumulative impacts of noise generated both above and below the surface of Puget Sound before and after construction, and propose mitigating measures, if needed. Because there appears to be a gap in available information pertaining to noise sensitivity of marine mammals, San Juan County requests, at a minimum, that a monitoring plan be required to assess noise impacts on marine mammals during construction and operation of this pipeline. This information should be made available to the public in report form as a resource to access when other marine developments are proposed.

5

6

In closing, we thank you for allowing San Juan County the opportunity to comment. The proposal has yet to demonstrate that it furthers the goals and policies of the San Juan County Shoreline Master Program and provides the protection required of sensitive marine and upland habitats. The proposed Georgia Strait Crossing pipeline introduces a significant risk to the health and well-being of a sensitive marine environment surrounding our islands which cannot be taken lightly.

Sincerely,

Francine Shaw
Deputy Director

cc. Joseph McKenna-Smith – Community Development and Planning Director
Alan Marriner – Deputy Prosecuting Attorney

Wednesday, October 29, 2003

FW: Georgia Strait Crossing Project

Subject: FW: Georgia Strait Crossing Project
 Date: Tue, 28 Oct 2003 14:19:57 -0800
 From: "Hosner, Sheila" <SHOS461@ECY.WA.GOV>
 To: "Richard Butler (rbutler@shap.com)" <rbutler@shap.com>
 CC: "Powell, Tim L." <Tim.L.Powell@Williams.com>



This came in after the official end of the comment period, but I said I would pass it on

-----Original Message-----

From: Brent Norberg [mailto:Brent.Norberg@noaa.gov]
 Sent: Monday, October 27, 2003 1:50 PM
 To: Hosner, Sheila
 Cc: Ken Hollingshead; Bob Donnelly; Lynne Barre; Lynne Barre
 Subject: Georgia Strait Crossing Project

To: Sheila Hosner, WA Dept. of Ecology

Sheila, This is in response to your recent card announcing public workshops and hearings on the Georgia Strait Crossing Project Environmental Impact Statement. I was unable to attend the hearings but was contacted by a constituent regarding lingering concern over the potential effects of underwater noise associated with operation of the pipeline. In reviewing Ecology's SEA Program Home Page I noted that two studies are cited as assessing this potential. According to our constituent, Dr. David Bain, Univ. of Washington, there may yet be flaws in the cited studies which may mean that operational sound levels will be higher than anticipated and could result in the localized disturbance of marine mammals in the area of the pipeline. Among the species that may be affected are Southern Resident killer whales, recently designated as a depleted stock under the Marine Mammal Protection Act, and harbor porpoises. If operational noise from the pipeline has the potential to disturb marine mammals along the pipeline route, it will be necessary for the operator to obtain a small take authorization under the Marine Mammal Protection Act. I wanted to ensure that this comment was received as a follow up to our previous comment to the Federal Energy Regulatory Commission regarding operational noise from the pipeline. Thank you for contacting us regarding the hearings.

Brent Norberg

Brent Norberg <Brent.Norberg@noaa.gov>
 Marine Mammal Coordinator
 NMFS, Northwest Region
 Protected Resources Division

GEORGIA STRAIT CROSSING PROJECT



2800 Post Oak Boulevard
P. O. Box 1396
Houston, TX 77251-1396

October 22, 2003

Attn: Ms. Sheila Hosner
Washington State Department of Ecology, NWRO
3190 - 160th Ave. SE
Bellevue, WA 98008-5452

**RE: Comments on the Draft Supplemental Environmental Impact Statement
Georgia Strait Crossing Project**

Dear Ms. Hosner:

Georgia Strait Crossing Pipeline LP (GSX-US) has completed its review of the Draft Supplemental Environmental Impact Statement (DSEIS) prepared for the above referenced project. GSX-US notes that in particular, previous submittals regarding the treatment of project alternatives and the Sumas and Vedder Mountain faults have not been incorporated in the DSEIS. While GSX-US acknowledges that Ecology may include the material they deem appropriate, GSX-US respectfully disagrees with Ecology's interpretation of alternatives and assertion that the Sumas and Vedder Mountain faults may affect the pipeline. Therefore, we would like to restate our comments for the record. However, since GSX-US has made more than one filing with Ecology regarding these issues, among others, GSX-US is not requesting a detailed response to these items, assuming our comments will be included in the final document as submitted for the public record. By way of format, GSX-US is providing comments on broader issues in text form and submitting grammatical comments in tabular form at the end of this transmittal.

GSX-US does not believe the NorskeCanada proposal should be addressed in the SEIS.

The NorskeCanada project will not reduce the demand for natural gas on Vancouver Island as stated in the DSEIS. In fact, the NorskeCanada proposal requires incremental volumes of natural gas and will cause expansion of an existing pipeline or installation of a new pipeline in order to meet additional delivery requirements. As proposed, the NorskeCanada projects would require 52 TJs/day (approximately 49,300 Dth/day) of natural gas. Currently, a total of 21 TJs/day (approx. 19,900 Dth/day) is available for use by NorskeCanada on the Terasen Gas Vancouver Island, Inc. (TGV1) system. The additional 31 TJs/day (approx. 24,900 Dth/day) would need to come from a system expansion or new pipeline (GSX, TGV1, etc.). Therefore, in conformance with the Washington Administrative Code and Ecology's definition of the GSX-US project's objective, any alternative presented in the SEIS should be able to deliver natural gas to Vancouver Island. Instead, the NorskeCanada projects, if built, would be a consumer of natural gas on Vancouver Island as opposed to a supplier of natural gas to Vancouver Island. The NorskeCanada project is an alternative to the Vancouver Island Generating Plant (VIGP), not GSX-US, and should be removed from the FSEIS.

The Consequence of the No Action Alternative is only that GSX-US would not be constructed.

The FSEIS should state that the only reasonably certain consequence of No-Action would be that the GSX-US project would not be constructed. The No-Action could have other consequences, but those consequences are not subject to identification or detailed examination at this point. Although it is clear that if GSX-US were not constructed, BC Hydro would need to find another way to meet Vancouver Island's growing energy needs, it is uncertain whether any future alternative could meet the needs in the required timeframe, and there is no way for Ecology to predict how such needs would be met.

GEORGIA STRAIT CROSSING PROJECT



2800 Post Oak Boulevard
P.O. Box 1396
Houston, TX 77251-1396

The TGVI proposal should not be considered an alternative to GSX-US.

As represented, the TGVI proposal is the only “alternative” that states it can meet the same general objective as the GSX-US project (deliver natural gas to Vancouver Island). TGVI is currently the sole provider of natural gas to Vancouver Island and did not present its current proposal to BC Hydro during the initial bid process in which GSX was selected, nor was such proposal presented as an alternative in the Federal Energy Regulatory Commission proceedings that resulted in a certificate being issued to GSX, or the National Energy Board regulatory processes that considered whether GSX should be built. Rather, this proposal was put forward in recent hearings on the VIGP and therefore, the TGVI proposal is at a preliminary stage. Significant detail is missing from the proposal and it is not an application but a project description. At this time, the TGVI proposal has not been subject to environmental, engineering, economic or regulatory review and does not have customers for the proposed expansion. Therefore, it is not appropriate to describe the TGVI proposal as an alternative because it has not been demonstrated that it is a feasible alternative that can meet the same objective with a lower environmental cost. At best it is one possible business opportunity that someone else might pursue in the event Ecology determines that a No Action Alternative is appropriate for GSX.

3

The BCUC Decision on VIGP does not change the need to complete SEPA and permitting for GSX-US

While the BCUC denied the application for VIGP, they agreed that there is a need for additional electric generation capacity on the island. The Commission expects BC Hydro to re-submit a CPCN application or an Electricity Purchase Agreement (EPA) and has stated that they will consider either on an expedited basis. While BC Hydro will consider other proposals, the GSX and VIGP projects are the benchmark for the process, as confirmed by the BCUC decision, and therefore, need to be preserved, as no other feasible alternate proposal has been presented or proven to provide a better solution. Vancouver Island is still in need of additional capacity, and to date, the only proven way of providing that capacity in a timely, reliable and cost-effective manner is the proposed VIGP and GSX projects.

4

Ecology should limit its consideration of DSEIS comments to those 39 issues included in the DSEIS

During its review of the Federal project record, Ecology determined the public process conducted for the FERC EIS was more than adequate to satisfy SEPA requirements. Further, the Ecology review determined that only those 39 issues identified in the DSEIS required further action. Therefore, GSX-US states that the FSEIS should only consider comments received on the 39 issues presented in the DSEIS. GSX-US strongly believes it would be inappropriate, and would unreasonably delay project permitting, to accept and process comments on issues that Ecology has determined were adequately addressed in the Federal process.

5

The GSX project is not a component of VIGP

At several locations in the DSEIS, the GSX project is described as a component of VIGP. GSX is not a component of VIGP; they are separate and distinct projects, with different owners. VIGP could be built with or without GSX as the gas supplier. Alternatively, if VIGP is not constructed, GSX could provide gas supply to the ICP and/or other replacement on-island power generating project(s). In fact, the existing ICP plant currently requires additional firm natural gas capacity (approx 45 TJs/day – approximately 42,650 Dth/d), which would be addressed by GSX.

6

GEORGIA STRAIT CROSSING PROJECT



2800 Post Oak Boulevard
P.O. Box 1396
Houston, TX 77251-1396

The Sumas and Vedder Mountain faults are not active or "potentially active" and the Vedder Mountain fault does not cross the GSX-US pipeline route

A figure showing the relation of the GSX pipeline to the two ancient faults identified by Easterbrook et al. (2001) is provided below. The location of the Vedder Mountain Fault, east of and parallel to the pipeline alignment, precludes the pipeline alignment from crossing the fault. The Sumas Fault is shown to be about 6.5 miles further to the west. If the projection of the trace of the Sumas Fault as shown on the geological maps is accurate, the pipeline would cross the fault trace about 2 miles northwest of the Town of Lynden –approximately at Mile Post 6.4 along the alignment.



Figure 1. Geologic Information by:
O.J. Easterbrook, D.C. Engebretson, D.J. Kovanen

GSX believes that no further pipeline engineering or construction measures are required to accommodate fault movement of the Sumas or Vedder Mountain faults. The current pipeline design is sufficient to accommodate all anticipated seismic loadings (ground shaking and liquefaction induced movements such as settlement, floatation, and lateral sliding). The pipeline does not cross the Vedder Mountain fault and therefore will not be subject to surface soil movement at that fault. In addition, there has been no evidence of surface rupture of either the Sumas fault or the Vedder Mountain fault in the past 12,000 years. Therefore, neither the Sumas fault nor the Vedder Mountain fault pose a threat to the pipeline as was indicated in the Easterbrook et al. report as further discussed below.

7

GEORGIA STRAIT CROSSING PROJECT



2800 Post Oak Boulevard
P.O. Box 1396
Houston, TX 77251-1396

The Easterbrook et al. paper discusses potential seismic hazards in the Sumas area that relate to these two fault traces. The inference in the paper is that these faults are active. The geotechnical and seismic analyses completed for the proposed GSX gas pipeline considered that potentially active faults would have to have shown signs of movements in the past 12,000 years (i.e., since the last glacial period). The faults discussed in the Easterbrook et al. paper have not produced surface expressions of any post-glacial movements that GSX-US is aware of. Thus, there are no known active faults along the land portion of the pipeline route in Whatcom County as has been previously stated. Further, neither the Sumas or Vedder Mountain faults are included in the latest (July, 2003) seismic hazard maps prepared by the USGS for seismic hazards with recurrence intervals of 475 and 2,500 years and these faults do not seem to be considered in the determination of seismic zones used in the latest hazard maps for southwestern British Columbia.

The Easterbrook et al. paper, prepared by geologists from Western Washington University (WWU), is apparently an advocacy report prepared for use by opponents of the SE2 project near Sumas, Washington. The authors hypothesized a direct correlation between recent seismic activity and movements along these ancient faults. The GSX consultants disagree with the WWU geologists' conclusion and believe that, in fact, there is no scientific evidence to support this argument. It must be recognized that their report has not been published in any scientific journal nor presented at any conference where it could be appropriately discussed by professional seismologists. Based on the consulting team's experience, there are a number of aspects of Easterbrook et al. report that would be significantly challenged in a scientific forum. Rather than their report providing "compelling" evidence, the GSX consultants consider the available evidence to be in favor of the conclusions presented in the original GSX geotechnical report. During field investigations and review of the geological reference material, both used to prepare the GSX geotechnical report, no information or surficial evidence could be found regarding surface ruptures during the past 12,000 years of the Whatcom Basin sediments due to active faulting.

Relative to the appropriate engineering design of the pipeline to resist seismic induced stresses, there are appropriate engineering standards to be used based on the location, overall seismic risk and probability of earthquake related soil and rock accelerations and movements. The appropriate level of engineering evaluation has been completed, which includes the probability of earthquakes, the potential for active faults and the capability of the pipeline to withstand seismic loading. The pipeline has been designed to withstand the impacts of the design-level earthquake for the area using current engineering practice. The risk of an event occurring that would impact the pipeline beyond the design parameters considered is extremely low. GSX and our consultants conclusions are that the referenced faults are not "active" or "potentially active" and therefore additional design measures, beyond those already included to handle any potential liquefaction induced soil movements, are not required.

Extreme hypothetical scenarios reported by Dr. Easterbrook point to massive destruction of any residential, commercial or industrial project in the area and cannot be used to justify abandoning such development. While earthquakes represent a risk for all people and structures in this region, the risks are routinely managed by proper engineering design and construction measures, as is the case with the GSX pipeline.

7
cont.

GEORGIA STRAIT CROSSING PROJECT



2800 Post Oak Boulevard
P.O. Box 1396
Houston, TX 77251-1396

Comments on DSEIS		
Section	Page #	Comment
Adoption Document	1	Under "EIS Required:" it states "The lead agency has determined this proposal is likely to have a significant adverse impact on the environment." There are no findings in either the FERC FEIS or DSEIS that determine there will be significant environmental impacts associated with the GSX-US project.
1.1.1	1-1	The first sentence of the first paragraph states that the FEIS was issued on July 17, 2003 - it should read July 17, 2002.
1.1.1	1-1	The last sentence of the first paragraph should read: The GSX-Canada portion of the project is undergoing environmental review under the provisions of the Canadian Environmental Assessment Act.
1.2.1	1-2	The second sentence should read: "This includes construction of up to three new compressor stations, installation of additional compression at an existing station, pipeline looping of 45.7 miles of existing pipeline....." The reference to 45.7 miles of looping does not reconcile with the looping mileage that is set forth on page 2-10. The summary on page 2-10 would suggest 45.3 miles of looping.
1.3	1-2	Chapter 6 (not 5) contains the distribution list for the DSEIS. Chapter 5 lists acronyms and abbreviations.
Table 1-1	1-3	In Issue 3 (Ecology Requirement) it should be reworded to state "Include descriptions and evaluations of the Terasen Gas proposal in the SEIS."
Table 1-1	1-5	In Issue 5 under Action, the end of the last sentence should be "clearing crews are to avoid fording perennial streams (see Section 3.3.6)"
Table 1-1	1-6	In Issue 3 under Action, the reference should be to Section 3.5.4 rather than 3.5.3.
Table 1-1	1-7	Issue 8 – Ecology has included Bertrand Creek as a bald eagle roosting site on the basis of observing eagles one time during the field visit. Designation of this area as a roosting site does not appear to be supported by WDFW records.
2.1.1	2-1	The second sentence of the first paragraph should read: At Boundary Pass, the pipeline would connect.....
2.2.2	2-7	The last sentence of the first paragraph under "Pipeline Facilities" should read: The marine portion of the project would terminate.....
2.2.2	2-7	In the last paragraph under "Pipeline Facilities" the reference to Terasen Gas should be replaced with TGVI
2.3.2	2-10	The last sentence of the paragraph under Compressor Stations should read: In addition, compression horsepower would be increased at TGVI's existing compressor station at Coquitlam, with modifications to the Texada Island compressor station.
3.2.2	3.2-1	Under Description of Problem, the faults are described correctly as Sumas and Vedder Mountain. Under Affected Environment they are transposed as Vedder and Sumas Mountain in the first sentence. GSX does not believe these faults are not active or "potentially active."
General		In some instances "Williams Gas Pipeline Company" is incorrectly referred to as Williams Pipeline Company.
		The Terasen Alternative should be considered as one possible outcome of the No Action Alternative. Any reference to NorskeCanada should be eliminated from the document.

8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

**GEORGIA
STRAIT
CROSSING
PROJECT**



2800 Post Oak Boulevard
P.O. Box 1396
Houston, TX 77251-1396

Please contact me at 713-215-2719 if you have any questions or comments. I can also be reach by e-mail at tim.l.powell@williams.com.

Sincerely,

Timothy L. Powell
Sr. Environmental Specialist

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

GEORGIA STRAIT CROSSING PIPELINE PROJECT

(Williams Gas Pipeline Company and BC Hydro Gas Pipeline)

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Public Hearing
(5:30-6:10 p.m.)

October 14, 2003
589 Nash Street
Friday Harbor, WA

HEARING OFFICER: BEV POSTON

Staff in Attendance: Shiela Hosner
Barry Wenger

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

I N D E X

10/14/03

Testimony received from:

SPEAKER

PAGE

Dr. David Bain	4, 19
Mr. Dave Hylton	9
Ms. Francine Shaw	13
Mr. Fred Felleman	14

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 Whereupon, after preliminary comments, the
2 following proceedings were had:

3 HEARING OFFICER: You're on.

4 Okay. And I always go by my watch because it's
5 always right. Let the record show that it is 5:34 p.m. on
6 October 14th, 2003 and this Public Hearing is being held at the
7 Friday Harbor Senior Center, 589 Nash Street, Friday Harbor,
8 Washington.

9 The primary purpose of this hearing is to receive
10 public comments regarding the proposed Supplemental
11 Environmental Impact Statement for an 85-mile natural gas
12 pipeline proposed by Williams Gas Pipeline and BC Hydro. The
13 Draft Supplemental Environmental Impact Statement was published
14 on September 24th, 2003 which opened up the Public Comment
15 period.

16 The legal notice of this hearing was published in
17 the Bellingham Herald and the San Juan paper on Wednesday,
18 October 1st, 2003.

19 The hearing notices were also published in the
20 SEPA Register, No. 200306075.

21 In addition, display ads were published in the
22 Bellingham Herald and the local San Juan paper on Sunday,
23 October 5th, 2003.

24 Ecology also directly mailed out approximately
25 400 announcements to interested parties, Washington State and

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 United States government agencies, Canadian agencies and the
2 Tribes.

3 Okay. When I call your name, please step up to
4 the microphone and give your name and address and who you're
5 representing and please begin providing comment for the record.

6 And the first person who needs to catch his ferry
7 is Mr. David Bain. Please come up and be seated, sir.

8 A VOICE: That's "Dr. David Bain."

9 HEARING OFFICER: Hi.

10 DAVID BAIN: Hi. I'm David Paine. I'm an
11 affiliate assistant professor of psychology at the University of
12 Washington. I'm speaking for myself rather than any group.

13 HEARING OFFICER: Okay.

14 DAVID BAIN: My research involves primarily
15 studies of killer whales, but I've also done a lot of the work
16 on the effects of noise on marine mammals. And in the course of
17 that work I've been doing surveys on marine mammals throughout
18 the intra-waters of the State of Washington.

19 And my reason for being here is I'm concerned if
20 this pipeline goes through unique marine mammal habitat, and the
21 area I'm most concerned about is the area where the pipeline
22 crosses the U.S./Canadian border.

23 And we have Orcas that were recently designated
24 as depleted by National Marine Fisheries Service. They're
25 currently being considered for endangered species listing by the

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 State of Washington. Boundary Pass is an important travel route
2 for them usually beginning in April of each year. And in recent
3 years they've continued to use that area into January and even
4 February, though historically they were generally out of there
5 by October as far as we know.

6 That area is also home to Harbor Porpoises. And
7 in my experience it has the highest density of Harbor porpoises
8 of anywhere in the State of Washington. Harbor porpoises,
9 recent stock assessment reports, have been considered to be
10 approaching levels at which they could be considered depleted,
11 although they're not currently listed by the National Marine
12 Fisheries Service.

13 That area is also used by large numbers of
14 Steller sea lions. Steller sea lions are considered threatened
15 under the Endangered Species Act.

16 And all three of these species are easily
17 disturbed by noise. And we had a recent example of that here
18 when the U.S.S. Shoup came through Haro Strait and significantly
19 changed the behavior of killer whales. And we had significant
20 increase in Harbor porpoise mortality associated with the period
21 of time that the Shoup was using sonar in the intra-waters of
22 Washington State. And in my study of responses of marine
23 mammals to air guns, Steller sea lions were much more easily
24 disturbed than other species.

25 The area is also used by large numbers of Harbor

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 seals, Dall's porpoises and to some degree by Minke whales.
2 Minke whales and Dall's porpoises also showed strong responses
3 to noise when the Shoup was coming through. However, Dall's
4 porpoises are generally relatively noise tolerant as marine
5 mammals go and Harbor seals seem to be relatively tolerant of
6 disturbance.

7 In addition to marine mammals, that area is also
8 crucial to birds and is a feeding area for Bald Eagles, Great
9 Blue Herons, Common Murres, Marbled Murrelets, Pigeon
10 Guillemots, a variety of Cormorant species and a variety of gull
11 species. And the highest densities of all these species that
12 I've seen in Washington State waters were in that area and just
13 east of the Canadian border where the pipeline crosses into
14 Canadian waters.

15 Let's see. There's been an effort in recent
16 years to reduce noise exposure in the marine environment. Just
17 yesterday we had a Federal Court issue a ruling restricting use
18 of low-frequency active sonar by the U.S. Navy to areas where it
19 was least likely to disturb marine mammals.

20 There was a proposal to carry out a seismic
21 survey in waters of Juan de Fuca Strait and off the west side of
22 Vancouver Island. That survey was postponed due to effect of
23 noise on marine mammals in the area. The Navy is currently
24 reviewing its use of mid-frequency sonar in intra-waters to try
25 to reduce incidents like those connected to the Shoup earlier

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 this year.

2 The Canadian government has begun prosecuting
3 whale watch operators for harassing marine mammals and the
4 National Marine Fisheries Service has recently sponsored studies
5 of the effects of vessel traffic and noise on killer whales as
6 part of the recovery plan and process for that species.

7 And GSX has produced conflicting reports about
8 the amount of noise that the pipeline is likely to produce.
9 Their initial report indicated the pipeline would produce enough
10 noise to be of concern. However, they produced more recent
11 reports suggesting that noise levels were overstated in the
12 initial report and it's possible that operating noise may not be
13 a concern after all.

14 However, construction noise will be a concern and
15 it will be necessary to take the impact of that noise into
16 consideration when scheduling times of year that construction
17 can be considered.

18 For example, the area along the pipeline route
19 is, as I mentioned earlier, fairly heavily used by Orcas from
20 April probably through January under present conditions, and -
21 and there's been consideration of allowing construction, say, in
22 February and March. However, March seems to be part of the
23 calving season for Orcas. And we have at least one pod that
24 uses intra-waters regularly, even during March.

25 So while that may be a way to minimize the amount

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 of total exposure of Orcas to noise from the pipeline, it may
2 result in exposure of some of the most vulnerable members of the
3 population.

4 And - and the data we have on construction noise
5 says that it's going to be quite loud relative to other noise in
6 the environment. And GSX has mentioned that that area is
7 heavily used by vessel traffic. However, during my research in
8 that area this spring, I did not find anywhere near the level of
9 vessel traffic that GSX had reported. That probably is partly
10 due to limited use of that area by recreational traffic at that
11 time of year.

12 And then also it should be pointed out that this
13 is a very long pipeline and vessels traveling through, say, the
14 waters near Vancouver Island may be part of their count, but
15 they would not be influencing acoustic environment in this
16 unique area that I've mentioned.

17 Let's see. Secondary concern I have is that the
18 trenching operations for the - for the pipeline will be
19 disturbing sediment, and we need to know what the toxin levels
20 are in those sediments. And there are a variety of studies that
21 have sampled different areas. And while we don't think the
22 pipeline goes through heavily - or sediment that's containing
23 high levels of toxins, the sheer quantity of pipeline of that
24 length is going to result in very large quantities of sediment
25 being disturbed. And even at low concentrations of toxins, you

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

3

4

1 may get a significant total amount put into the environment.

2 And these toxins will initially be taken up by
3 benthic organisms, which will be fed upon by bottom fish, which
4 will be fed upon by marine mammals. So, through time, these -
5 the toxins that are disturbed will work their way through the
6 food chain. And, to date, I think there's been inadequate
7 sampling to determine what the likely outcome of - that's likely
8 to be as these toxins reach the top of the food chain.

9 We already know Orcas have very high levels of
10 toxins. And - and these levels of toxins are associated with
11 reproductive failure of Bottlenose dolphin in captivity. And
12 we've observed L-pod producing fewer than half the number of
13 expected calves over the last ten years, and toxins are a
14 potential mechanism for that reduction in calving.

15 So we need to be concerned that putting
16 additional toxins into the environment may not - will only
17 further reduce calf production by L-pod, it could also put J and
18 K over the limit and may start seeing a reduction in calving
19 rate in those pods, as well.

20 So in the interest of staying close to five
21 minutes, I think I'll stop there.

22 HEARING OFFICER: Okay. Thank you.

23 Mr. Dave Hylton.

24 DAVE HYLTON: That's me.

25 HEARING OFFICER: Okay.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

4
cont.

1 DAVE HYLTON: I'm Dave Hylton, H-Y-L-T-O-N. I
2 live here on San Juan Island and have 35 years of engineering
3 background and - and career in the pipelines' engineering.

4 My - my main concern of this project is the
5 safety of the pipeline offshore in the deep water sections.
6 I've-- The onshore sections can be done. The shore crossings
7 can be done. But the offshore is - is a, in my view, is beyond
8 the state of the art of current construction and design. There
9 has, to my knowledge, never had a pipeline that's in a tidal
10 current zone that's over a thousand feet deep, both to install
11 it and to operate it. And particularly in a very active seismic
12 zone.

13 You have to visualize a pipeline that's operating
14 over 2000 PSI, which is, any of you can understand that, would
15 be like a cylinder of high pressure oxygen, that's - which is
16 typically over two thousand pounds pressure in the pipeline. So
17 it's a very high-pressure pipeline. And it's - it's in a -
18 contained in a 16-inch pipeline that has in their design to be
19 laid on top of the ocean floor.

20 And when they - speaking of laying it on top of
21 the ocean floor, you have to visualize that as being on top of a
22 mountain, the side of a mountain or the edge of a mountain,
23 because that's what you have below the surface of the water is
24 you're really laying this on the side of a mountain. And it
25 will not be trenched. It will be laying on the surface. And

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

5

6

1 yet that is not actually - actually continuously laying on the
2 surface, it's between boulder to boulder or hill to hill where
3 it's spanned, free spanned with space underneath the pipeline
4 and water flowing around the pipeline during tidal currents.

7

5 So you have to visualize this steel pipe that's -
6 barely has a negative buoyancy that's - is riding there carrying
7 gas at 2000-plus PSI.

8 And in their description to install this pipeline
9 they say, "Well, we're going to try and not lay it on boulders
10 and we're going to have a remote television down there a
11 thousand feet deep looking for where it's sitting on boulders.
12 And if it is sitting on the boulder, we'll back up and try to
13 move it sideways and take the off the hills.

14 So this is-- This is all theoretical in my view
15 because it has never been done before in a thousand feet of
16 water with high currents. And, bear in mind, this operation is
17 done 24 hours a day. It's a continuous operation, 24 hours a
18 day. Night and day they - they build pipelines.

19 So the chances of - of overstressing the pipe
20 during construction are, in my view, very high and would cause
21 distress in the future of the pipeline, the operating when the
22 pressure is up at operating pressure.

8

23 The - the concerns that they talked about in the
24 safety section of the EIR-EIS, they used a comparison study. It
25 was done with liquid pipelines instead of gas pipelines in - in

9

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 the State of California. So their reference, I think, is
2 erroneous to draw conclusions for the safety of the pipeline,
3 which is an offshore pipeline.

10

4 Particularily in the event of a - of an earthquake
5 where you have the ocean floor sliding downhill. It would slide
6 downhill and carry the pipeline with it and probably break it.
7 It would rip it and break it. Or an anchor could drag it and
8 rip it and break it. So there's-- It is a highly trafficked
9 area.

11

10 So I guess my-- In concluding, I would like to
11 say if the pipeline breaks, you'll have either a - a huge leak
12 or a small leak and it would be at 2000 pounds pressure. You
13 would have a large volume of natural gas coming to the surface,
14 which does two things. It burns. And so if there's a vehicle,
15 a boat -- Lots of boats -- if there's a boat there, it would be
16 enveloped in flame. And - and/or it would - the boat would
17 sink. Because when you have gas bubbles coming up from the
18 ocean, the buoyancy effect of the water your boat's in is
19 diminished and boats sink. That's happened on several occasions
20 in real life.

12

21 So there's - there's a risk of sinking a boat
22 because of loss of buoyancy of the natural salt water and a risk
23 of fire. So there's-- Obviously, this is a worst case
24 scenario, but when you look at safety concerns, you always look
25 at the worst case scenarios. They are credible. They're

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 credible events that could happen.

2 And the EIR-EIS, they talk about the fact that it
3 is an active earthquake area and that the ocean floor will move.

4 So they've - they've agreed that this will all
5 happen. They haven't considered the consequences of it
6 happening though.

7 That's kind of my - my concerns in a nutshell.

8 HEARING OFFICER: Okay.

9 DAVE HYLTON: That's it.

10 HEARING OFFICER: Thank you.

11 Francine Shaw.

12 FRANCINE SHAW: My name is Francine Shaw. I am
13 with the San Juan County Community Development and Planning
14 Department.

15 And I put my name on the list to testify, but I
16 am, at this point, going to reserve my comments. Put them in
17 writing to you by the end of the comment period, by
18 October 25th. There's a lot of information that's been
19 provided just in the short two discussions that we've had that I
20 would like to think about when I review the documents.

21 HEARING OFFICER: Okay. Thank you.

22 Fred-- Is it Felleman?

23 FRED FELLEMAN: Felleman.

24 HEARING OFFICER: -- Felleman. Okay.

25 FRED FELLEMAN: My name is Fred Felleman. I have

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 a place on 1060 Smugglers Cove Road. And I have - wear several
2 hats in the context of this pipeline. I'm the President of the
3 Fuel Safe Washington, a small, non-profit organization that was
4 founded to raise concerns about the natural - the-- Actually,
5 the oil pipeline that was going to be over the Cascades to--
6 And I've been involved with the Lowe Point Project and the
7 Olympic Pipeline concern. So we've had a lot of interest in
8 that.

9 I also have a long history of being involved with
10 conservation of the marine environment, Northwest Orca Ocean
11 Advocate and on the Board of Orca Conservancy. So my having a
12 long time living here for the study of killer whales, I have a
13 lot of concerns about a project that is basically speculative.

14 And there is a need to revisit the whole need for
15 a project like this, whether-- Whether there's adequate
16 mitigations or not, there's obviously impacts. And one has to -
17 to determine first is there a reason to be - being subject to
18 the impacts, no less the mitigations when, in fact, the actual
19 fuel plant that this pipeline is supposed to serve is now no
20 longer on the drawing boards.

21 So this - this project is now completely a
22 speculative project that the - that the elected officials in
23 Nanaimo have determined that the need for this gas plant that
24 this pipeline was supposed to feed is no longer needed. And
25 that they were to find more cost-effective alternatives.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 I would like to really back up a second and
2 express my appreciation to the Department of Ecology in their
3 efforts to require a Supplemental EIS on this project for it is
4 full of - the FERC process has been full of holes. And that I
5 also appreciate the fact that you're holding two public hearings
6 and including one in the San Juans. And - and the fact is I
7 believe this is the only document I've seen so far that's
8 actually tried to put in one place a discussion of the Canadian
9 side of the project.

10 Fuel Safe Washington is - has filed a legal claim
11 against the - challenging the adequacy of the FERC EIS in the
12 Appeals Court in part because the EIS does not consider the
13 impacts on Canada. And - and NEPA, the National Environmental
14 Policy Act, requires us to consider the impacts on another
15 country. We have two separate EIS's on either side of the
16 border, neither of which are referring to the other.

17 And, in fact, the alternatives being discussed
18 between these two countries are different. And this is of great
19 concern to me in that Canada is the great repository of
20 hydrocarbons and the United States is the great consumer. And
21 so there will be, we expect in the future, many more such
22 projects crossing from the Alberta oil fields into the Midwest
23 and other states that will probably be fraught with the same
24 types of bifurcated analysis that does not address in a unified
25 fashion, a holistic manner, the impacts of the overall project.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 And we feel it is a terrible precedent to allow FERC to conduct
2 themselves in such a piecemeal fashion.

3 So I appreciate Ecology's efforts and see that
4 this document goes some distance to improve upon that. However,
5 in the-- In - in providing some initial comments here, not
6 having had a chance to review it in - in complete -- Things are
7 a little busy these days -- I will be providing some additional
8 comments in writing. But the--

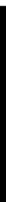
9 There is recognition that San Juan County has
10 characterized these waters as aquatic in their coastal zone
11 consistency determination; but there is no, I think,
12 determination as to whether being a - a-- Basically, a - a
13 corridor for this pipeline is consistent with the County's
14 designation.



17

15 And, as Dr. Bain referred to, having the totem
16 species of the Sound declining 20 percent over the last five
17 years, now being characterized as "depleted" -- And we're also
18 litigating that it should be on the threatened list under ESA --
19 this is not the time to be subjecting our marine resources, no
20 less our - our totem species to additional impacts when they are
21 in a depleted condition.

22 Now, the EIS and the SDEIS are rather dismissive
23 about the acoustic impacts in that they say that these
24 frequencies and intensities are not of concern to marine
25 mammals. But there is no mention of the acoustic impacts on



18

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 fishes. And the fish of greatest concern to me -- And it's
2 amazing to me that in the original comments to the DEIS and the
3 EIS neither DNR or DOE raise concern about the Cherry Point
4 herring stock. The once largest herring stocks in the State of
5 Washington, equal to all the other stocks combined, is now a
6 mere fraction of their historical volumes. And to think that we
7 are going then to lay a pipe that is currently proposed to be
8 tunnelled underneath these herring beds to bypass the DNR's
9 aquatic reserve, but the "glory hole," as it's so affectionately
10 referred to, has a expected effluent of the drilling mugs that
11 will then be cast onto the sediments, which will be likely
12 passed over the herring beds.

19

13 Herring are extraordinarily acoustically
14 sensitive species. Most species with swim bladders are so.
15 Herring are particularly acoustically sensitive because they're
16 mass spawners. And I don't know whether if it's they're bashful
17 or it's just a good predatory response, but when you group up to
18 do your business, this is a very vulnerable time in their life
19 history and they're easily spooked. Having a low frequency hum
20 in the background of a stock that is in need of remediation, not
21 further insult, is a completely inappropriate - inappropriate
22 project to be subject to.

20

23 And I guess the only other comment I would like
24 to make at this time is that there's a comment made in here --
25 And I don't know if it's in reference to the EIS or just in the

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 citation of the EIS -- but in talking about how this - there's
2 portions of the pipeline that will not be able to be buried. I
3 guess we should step back a minute just in terms of the laying
4 of the pipeline.

5 You know, first this entire sediment area will be
6 scraped. So the benthic environment will be directly impacted.
7 Then it will be carved, to the degree that it can be, where it's
8 not too hard or too deep. And then the pipe will be laid and
9 some attempt for burial.

10 So, you know, for all the efforts in the state
11 about rockfish, this is directly impacting the very habitat that
12 the benthic species, like rockfish, inhabit. But in - in what
13 sounds to me like would be only something you would find in a
14 Gulf state EIS, where if you've ever been in the aquarium in New
15 Orleans, where they actually have the oil rigs' legs in the
16 aquarium and they show how encrusted they become and they go,
17 "Look. It's habitat."

18 So we describe the pipeline as forming reef-like
19 structure. I mean, such euphemisms for an insult to our habitat
20 is, I think, egregious and inappropriate. Especially in that
21 when the pipeline is laid at the surface, especially at places
22 like East Point -- "Boiling Reef" it is affectionately referred
23 to on the charts -- this - this will not be habitat. This will
24 be scraping repeatedly through the currents and obviously a
25 place of great vulnerability and one of the key migratory

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 corridors for the species of great concern to this State.

2 So while I do appreciate the advancement this
3 document has made, it has room to go.

4 Thank you very much.

5 HEARING OFFICER: Thank you.

6 Okay. Is there anyone else who would like to
7 testify that did not indicate when they signed in on the sign-in
8 sheets? Not?

9 Well, I certainly didn't expect this to end so
10 quickly. Okay.

11 DAVID BAIN: I got some more I could say.

12 HEARING OFFICER: Oh, well, if you want to come
13 up and say some more, you're more than welcome to.

14 FRED FELLEMAN: Don't stop now.

15 HEARING OFFICER: Remember, it's your ferry ride.

16 DAVID BAIN: Still got over an hour.

17 HEARING OFFICER: Oh, my gosh.

18 DAVID BAIN: I won't talk that long.

19 HEARING OFFICER: (Coughing) Excuse me.

20 DAVID BAIN: Okay. A few things I would like to
21 add.

22 One point on the acoustics. The measurements
23 have all been focused on the noise generated by the gas moving
24 through the pipeline. And there's been, you know, brief mention
25 of machine noise that may be propagated through the pipeline, as

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 well. But, as the other speakers have mentioned, this pipeline
2 is going to be in a high current environment and that means that
3 it's going to be bending and creaking and things like that.
4 And, you know, particularly at times of high current, there's
5 likely to be additional noise. And, to date, there's been no
6 attempt to model that that I'm aware of.

23

7 I would also like to point out that because the
8 pipeline route goes through unique habitat, that means there's
9 alternative habitat farther away that would offer an alternative
10 route. For example, existing central pipeline, which may be the
11 Terasen option that's posted on the wall, is far enough north
12 that it's not very heavily used by southern resident Orcas,
13 Harbor porpoise densities are much lower up there, and it would
14 be an area where you would put a pipeline and have much smaller
15 effects on marine mammals and marine birds than the proposed
16 route.

24

17 It was also mentioned by another speaker that
18 British Columbia is having second thoughts about whether they
19 need this pipeline now. And, with that in mind, even if this
20 route is to be used, if it could be used several years from now,
21 that would be beneficial. Natural Marine Fisheries is just
22 starting on recovery planning for Orcas and should have an
23 action plan ready by the end of next year. So if they had a
24 chance to implement that plan and give the population, say, ten
25 years to recover before this pipeline were built, they'd be in a

25

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 much better position to tolerate that disturbance. Likewise,
2 Harbor porpoises could be given some time to recover. And
3 Steller sea lions are another population that could use time to
4 recover before this pipeline goes in.

26

5 So if the benefits that we saw for this pipeline
6 at the time that we're experiencing energy shortages are not as
7 real as we thought they were, just as there have been
8 suggestions that the energy shortages were due more to market
9 manipulation than the actual availability of energy, if we could
10 delay the installation of this pipeline, there would be benefits
11 to marine mammals.

27

12 It's also been pointed out that having a hard
13 pipeline going across soft sediment changes the habitat
14 structure. And if you happen to be a hard bottom species, that
15 change in structure may be beneficial to you. But if you're a
16 soft bottom species, this basically gives predators a place to
17 live. And then they can go out and feed upon you. It also
18 provides a route for invasive species to traverse soft bottom
19 habitats. So if you have an invasive species that likes hard
20 habitat, this pipeline gives it the opportunity to move to new
21 areas that it might not be able to access otherwise.

28

22 And invasive species are another environmental
23 problem that recent efforts have started to address. And it's
24 something that if we can buy time before this pipeline goes in,
25 there may be some actions taken to reduce the number of invasive

29

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 species in the region so that their movement across the pipeline
2 route will be less of a concern.

3 Thank you.

4 HEARING OFFICER: Okay. Thank you.

5 Okay. Is there anyone else who would like to
6 provide testimony?

7 No? Okay.

8 Okay. All the oral testimony that was presented
9 at this hearing, as well as the hearing that we're holding
10 tomorrow night in Bellingham, and any written comments that are
11 received are part of the official record for this proposal and
12 will receive equal weight in the decision-making process.

13 On the back-- On two back tables there are
14 two-- There is a form back there that I've prepared. Sometimes
15 providing oral testimony is a little uncomfortable for folks,
16 unless you're someone like me who likes to talk. And so if you
17 would rather provide written testimony, please feel free to take
18 one of the forms back there, fill it out at your leisure, but
19 make sure that we get it by October 25th. And I'll give a
20 little bit more information on that later. The address is on
21 the form. But it gives you an opportunity to kind of digest
22 things you've heard tonight and maybe research out more
23 information. And you can submit written comments. And, as I've
24 said, written comments receive as much weight in what Ecology
25 will ultimately decide as oral comments. There's no difference

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 between the two.

2 Written comments should be postmarked, faxed or
3 e-mailed by October 25th, 2003. And they will go to Sheila
4 Hosner. And her last name is spelled H-O-S-N-E-R. And please
5 send written comments to Sheila at the Department of Ecology,
6 3190 - 160th Avenue Southeast, Bellevue, Washington.
7 98008-5452.

8 You may fax comments to her. Her fax number is
9 area code 425-649-7098.

10 You may also e-mail comments to Sheila. And her
11 e-mail address is -- And this is not case sensitive --
12 shos461@ecy.wa.gov.

13 All oral and written comments received during the
14 Public Comment period will be responded to in a document called
15 a Response to Comment Summary that will state Ecology's official
16 position on the issues and concerns that have been raised during
17 this Public Comment period. This document should be available
18 by mid-November. That's my understanding. And it will
19 automatically be mailed out to everyone who provided oral or
20 written comments.

21 It's also my understanding that Ecology is
22 expecting to make a decision on the Final Supplemental
23 Environmental Impact Statement by around Thanksgiving time.

24 So, on behalf of the Department of Ecology, thank
25 you very much for attending our Public Hearing. We appreciate

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 your time and the comments that we received tonight. And this
2 Public Hearing is adjourned at 6:10 p.m.

3 A VOICE: I was wondering if you would share with
4 the audience the legal challenge that's before the agency
5 regarding your ability to complete this document.

6 HEARING OFFICER: That I don't know. Barry-- I
7 - I-- Do you know something about this?

8 BARRY WENGER: Well, actually, legal challenge is
9 not about if we're going to complete the document. We're going
10 to complete the document, go forward with our process. The
11 shoreline permits, the Water Quality 401 Certification that we
12 have to have issued, and we have all the authority to do that.
13 The - the proponent has actually petitioned FERC saying that
14 we - we've made procedural errors along the way and that we've
15 lost our opportunity to - to call the Coastal Zone Management
16 Federal Consistency Determination based on Shoreline Permit and
17 Water Quality 401 Certification. So that's been petitioned or
18 replied through our Attorney General's Office. And who knows
19 where it goes from there exactly. But they will-- They will
20 hear all the evidence and make some decision on it.

21 HEARING OFFICER: Okay.

22 A VOICE: And I see the comment deadline is a
23 Saturday.

24 HEARING OFFICER: Um-hum.

25 A VOICE: So that's to be received at the agency

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 on a Saturday?

2 HEARING OFFICER: It could be sent by e-mail. It
3 just has to be postmarked by that date.

4 A VOICE: Postmarked? Karen darn this is.

5 HEARING OFFICER: Postmarked by that date. Or,
6 as I said, e-mail. Definitely e-mail on a Saturday. That's not
7 a problem.

8 Okay. Anything else? Thank you. Have a safe
9 journey back.

10 (Whereupon, the Public Hearing was adjourned.)

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

REPORTER'S CERTIFICATE

I, KAREN P. SHIPLEY, CSR No. 2051, Certified
Shorthand Reporter, certify;

That the foregoing proceedings were taken
before me at the time and place therein set forth, at which
time;

That the testimony of the citizens
were recorded stenographically by me and were
thereafter transcribed;

That the foregoing is a true and correct
transcript of my shorthand notes so taken to be best of my
ability to hear and discern.

I further certify that I am not a relative
or employee of any attorney of the parties, nor financially
interested in the action.

I declare under penalty of perjury under the
laws of Washington that the foregoing is true and correct.

Dated this 27th day of October, 2003.

KAREN P. SHIPLEY, CSR No. 2051
360-679-8493
1204 Hersig Road
Oak Harbor, Washington 98277

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

GEORGIA STRAIT CROSSING PIPELINE PROJECT

(Williams Gas Pipeline Company and BC Hydro Gas Pipeline)

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Public Hearing
(7:08-7:39 p.m.)

October 15, 2003
311 Grand Avenue
Bellingham, WA

HEARING OFFICER: BEV POSTON

Staff in Attendance: Shiela Hosner
Barry Wenger
Joan Pelley
Richard Butler

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

I N D E X

10/15/03

Testimony received from:

SPEAKER

PAGE

Mr. Tom Edwards	4
Mr. Fred Schuhmacher	5
Ms. Wendy Steffensen	7
Ms. Kay Schuhmacher	9
Mr. Budd Askew	11
Mr. David Sergman	13
Mr. David Roberts	16

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 Whereupon, after preliminary comments, the
2 following proceedings were had:

3 HEARING OFFICER: Okay. If everybody could
4 please be seated, we'll go ahead and begin the Public Hearing.
5 And I'll give you the high sign.

6 (Preliminary Remarks.)

7 Let the record show -- And I use my watch
8 because it's always right, even when it's wrong -- let the
9 record show it's 7:08 p.m. on October 15th, 2003. And this
10 hearing is being held in the Whatcom County Courthouse, 311
11 Grand Avenue, Bellingham, Washington.

12 The primary purpose of this hearing is to receive
13 public comments regarding the proposed Supplemental
14 Environmental Impact Statement for an 85-mile natural gas
15 pipeline proposed by Williams Gas Pipeline and BC Hydro. The
16 Draft Supplemental Environmental Impact Statement was published
17 on September 24th, 2003 which opened up the Public Comment
18 period.

19 The legal notice of this hearing was published in
20 the Bellingham Herald and the local San Juan paper on Wednesday,
21 October 1st, 2003.

22 The hearing notices were also published in the
23 SEPA Register, No. 200306075.

24 In addition, display ads were published in the
25 Bellingham Herald and the local San Juan paper on Sunday,

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 October 5th, 2003.

2 Ecology also directly mailed out approximately
3 400 announcements to interested parties, Washington State and
4 U.S. governmental agencies, Canadian agencies and the Washington
5 State Tribes.

6 Okay. At this point in time when I call your
7 name, if you would please come up and give your testimony. And
8 we will be limiting testimony to five minutes. But you can say
9 a whole heck of a lot in five minutes. I just want to give
10 everyone an opportunity to come up and provide testimony. And
11 when everybody has-- I've gone through the list. And when
12 everybody has done that, if we have time left over, I will
13 certainly allow folks to come up and provide additional
14 testimony if they feel they didn't have enough time to say all
15 the comments they wanted to say.

16 So the first person who indicated they might like
17 to provide testimony -- wasn't too certain -- was Mr. Tom
18 Edwards.

19 Mr. Edwards, are you interested in coming up?

20 Okay.

21 If you could come up here and speak into one of
22 the microphones. And please state your name and affiliation for
23 the record. You may begin, sir.

24 TOM EDWARDS: Hello. My name is Tom Edwards
25 (indiscernible) from the Lummi Nation and my testimony I wanted

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 to give about the Georgia Strait Crossing Pipeline Project is
2 regarding cultural resources. And there, I was looking out
3 there at your paper handout, what the next steps were going to
4 be. And I think, one, I didn't see anything mentioned on
5 cultural resources. Two, also out of those cultural resources
6 there are nonrenewable resources towards the Lummi Nation and
7 the Lummi community. Also, there's a process called 106
8 process. Also, we would like to see how - how can we
9 incorporate our Lummi Nation's Title 40, which is - which covers
10 cultural resources within the project. And that's what I got to
11 say.

12 HEARING OFFICER: Thank you.

13 Okay. Mr. Fred Schuhmacher.

14 FRED SCHUHMACHER: Hello. My name is Fred
15 Schuhmacher. I live at 5583 Whitehorn Way in Birch Bay.

16 My reservations about this projects are: First,
17 I believe that a building of this pipeline is counter-productive
18 to the health and welfare of the people of Whatcom County.
19 There is no economic benefit for Whatcom County, Washington or
20 for the U.S. for that matter. There is no additional gas
21 supply. But we will be left with a ten thousand horse power
22 compressor station with its attendant noise and air pollution.

23 Second, I believe that building this pipeline
24 will have environmental consequences that will affect people far
25 beyond Whatcom County for the following reasons. The purpose of

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 the pipeline is to supply energy for the growth of population
2 and industry on Vancouver Island. Victoria's capital regional
3 district is the No. 1 polluter of the body of water that we all
4 share. More than 12 million gallons of raw sewage are
5 discharged annually through underwater outfalls in the Strait of
6 Juan de Fuca. Victoria is the only large city along the West
7 Coast of North America that dumps its raw sewage and anything
8 that goes with it directly in the ocean. It does this without
9 regard to the health and welfare of its neighbors across the
10 Strait of Georgia or the Strait of Juan de Fuca.

11 Extensive areas along the outfalls have now been
12 close to shellfish - shellfish harvesting. Any city in the U.S.
13 in similar circumstances would be under a strict moratorium on
14 further growth until the situation was corrected. Victoria,
15 however, seems determined to flaunt the environmental laws of
16 its own province and has no intention to stop this deplorable
17 practice.

18 Until Victoria builds a modern treatment facility
19 for this waste, building this pipeline is a bad idea. It will
20 encourage further growth on Vancouver Island, which will
21 increase the volume of raw sewage that will be discharged into
22 the water. Water has no boundaries and the increased pollution
23 will affect marine life and all people living along the coast in
24 this region.

25 Thank you.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

3
cont.

1 HEARING OFFICER: Thank you very much.

2 (Applause.)

3 HEARING OFFICER: Okay. Wendy Steffensen.

4 WENDY STEFFENSEN: Wendy Steffensen. North Sound
5 Bay Keeper With Resources. First, I would like to say that I
6 question whether need has actually been demonstrated for this
7 project. I've looked at most of the documents. Specifically,
8 the need section. And two things haven't been looked at in
9 detail.

4

10 First of all, the fact that the Vancouver Island
11 Generation Project has been denied. So that has been the main
12 impetus for GSX going through, and that has been taken away.

5

13 Secondly, the alternative analysis looks very
14 faulty in the SEIS. From what I can read on the alternatives
15 analysis these were discounted because they were either too
16 expensive or quote/unquote "environmentally damaging." The
17 expense amount, No. 1, doesn't take into account the
18 environmental costs of doing things.

6

19 Secondly, in terms of the environment cost, they
20 cite two things over and over again. One is the looping of
21 pipeline. And the looping, I found out, is the same thing as
22 twinning, which-- So it-- Basically, it means the pipeline
23 is running right alongside the other pipeline. And so when they
24 talk about looping through mountainous terrain, they're
25 basically talking about running a side-by-side pipeline. So the

7

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 blown out environmental cost to looping through mountainous
2 terrain really pales in comparison to going to the Cherry Point
3 area.

4 The other thing they mentioned in one of the
5 alternatives is that the pipeline would go through a fault zone
6 and be subject to - to liquefaction. Going into more detail
7 into the FEIS, we have moderate to high liquefaction risk, as
8 well, in Whatcom County. Specifically, Northern Whatcom County,
9 about one-third of the pipeline is going to be going through
10 moderate to high liquefaction areas as well as Cherry Point,
11 which has just been designated Aquatic Reserve. That near-shore
12 area also has high liquefaction risk.

8

13 So it appears to me that the alternatives
14 analysis was - was done with an end in mind and not
15 open-mindedly. And that's on the FEIS, FERC's FEIS.

16 The other thing that I wanted to mention is that
17 it looks like our energy needs aren't being looked at
18 cumulatively. As I said before, theoretically, we're-- This--
19 The energy is supposed to be used by Vancouver Island and then
20 off in the distance you hear people saying, "Well, maybe it will
21 be used by Cherry Point at some future - some future time" and -
22 and that's used to basically bolster this argument of getting
23 the pipeline through.

9

24 However, now we have BP co-generation plant being
25 proposed at Cherry Point. And so if, indeed, the pipeline is -

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 is being gotten through because we think that we're going to use
2 energy at Cherry Point, I think we should be looking at - at the
3 entire energy picture.

4 I also-- I looked at the Draft Supplemental EIS
5 and some of the changes that were made to the EIS where - where
6 GSX-U.S. went back and they increased mitigation measures, as
7 well as flush out some more detail. And when you look at some
8 of this information on the surface, it looks like they're going
9 to do more than they were before. And some of these measures
10 look like that they will be adequate. However, mitigation is -
11 is always problematic. There will always be environmental
12 degradation associated with this process and we haven't shown
13 that it's needed.

14 I will be submitting specific comments later.

15 Thank you.

16 HEARING OFFICER: Okay. Thank you.

17 (Applause.)

18 HEARING OFFICER: Kate Schuhmacher.

19 KAY SCHUHMACHER: Hi. My name is Kay

20 Schuhmacher. I live at the 5583 Whitehorn Way, Birch Bay.

21 I rarely make a comment, but this GSX project
22 compelled me to speak. I need to wear (indicating eyeglasses)--
23 Because I feel I have such a strong feeling about this project.

24 I don't know, no matter how I look at this
25 project, there is no beneficial side for not only Whatcom County

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 but whole Northwest, for that matter the State of Washington. I
2 can see the beneficial side maybe. These days I hear so much
3 over any unpopular project going through. They are trying to
4 have, says, pitch over job creation. I buy that. It might
5 create the jobs, which will be temporary. And maybe a State
6 government or Federal government might be able to collect some
7 revenues from BC Hydro and the Williams Company. But the
8 environmental impact it will create is so huge that I really
9 have to speak my mind.

10 Now, I think it was this morning's Bellingham
11 Herald that I read even Navy is going to try to be very careful
12 with their sonar tests for the whales' sake. And, you know, I
13 believe in coexisting with marine life, as forest. Without
14 having all those nature, what they provided, marine life, we
15 don't-- We don't survive very well, you know. So I do not
16 really like to hurt them in any way.

17 And I feel this project, there is so much unknown
18 facts they are trying to prove. Their monitoring shows this and
19 this. There is no proof it is going to be really safe for our
20 marine ocean, marine - marine life. And so that's my biggest
21 concern.

22 And, you know, job creation. Okay. People will
23 have the jobs; make some wages. But that's temporary. Once the
24 job's finished, work is done, their paycheck is gone. They have
25 to go move on to another job.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 And the only benefit that might give is Williams
2 Company and BC Hydro. What do we end up? We will end up with a
3 long-term altered ocean marine life ecosystem. And that will be
4 long lasting effect which comes from this project.

5 Therefore, I really oppose this project to get -
6 to be approved.

7 Thank you very much.

8 HEARING OFFICER: Okay. Thank you.

9 A VOICE: Good job.

10 HEARING OFFICER: Bud Askew. I hope I said that
11 right.

12 BUDD ASKEW: Hello. My name is Budd Askew and I
13 owned my land on Lynden/Birch Bay Road for about twenty years
14 now. It was about 95 percent wooded when I bought it. I've
15 been a horticulturalist for thirty years, and I looked at it as
16 an overgrown landscape. I cleared out the center of it. Kept
17 all the trees, big Evergreen cedars, all the way around it. And
18 got it just the way I wanted it. It's like a park. There's a
19 pond in the back. I have a house site that I plan to build.

20 And as you look out to the east side
21 (indicating), I know you probably can't see very well, but it
22 looks like this right now. That's how it will look once they
23 put the gas line through.

24 In no way do I want a gas line through my
25 property. They're deviating from a route that they were

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 following on another gas line and they decided to come through
2 my place because then they just got to deal with my place and
3 ten acres is cheaper than four two-acre tracts. I have a gas
4 line 150 yards on one side, which is Cascade, and I have Arco
5 about 20 yards on the other side. Why we need one through the
6 middle of my place, I really don't know. I'm very opposed to it
7 and haven't had very good luck dealing with the gas company.
8 They've told me one thing. Shaken hands on-- Actually had a
9 deal one time. Shook his hand. He came back with a totally
10 different deal and I ran him off my property and I don't care to
11 have him on my property because I don't like to deal with
12 dishonest people.

13 And I see no - no gain for Washington, Whatcom
14 County, myself; anybody except maybe Williams Gas Line and BC
15 Hydro.

16 That's about it.

17 HEARING OFFICER: Okay. Thank you, sir.

18 A VOICE: Are the mikes turned on?

19 HEARING OFFICER: Yes, they are.

20 A VOICE: Don't sound like it because it's hard
21 to hear in this room.

22 HEARING OFFICER: They're on. Local staff came
23 and turned everything on for us. I think it's maybe just the
24 position of some people. It seems like you have to be extremely
25 close to them and maybe some folks aren't quite as close.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

13
cont.

1 Okay. Oh, boy. I hope I don't say this wrong
2 and I apologize if I do. David, is it Sergman.

3 A VOICE: Sergman.

4 HEARING OFFICER: Sergman.

5 DAVID SERGMAN: My name is David Sergman and I
6 live on Kickerville Road. This pipeline is going to be within
7 600 feet of my house, and I have several issues that, you know,
8 really should be talked about here first. I think I'm going to
9 start with a requirement of the original Environmental Impact
10 Statement. The FERC had asked Williams to provide information
11 on locations of raptor routes used by eagles, other raptors.
12 And I find no where that they've ever responded to that request
13 by the FERC.

14 Then I know that on my piece of property, which
15 is ten acres, that bald eagles use the trees to roost. There
16 are owls hunt on my property. We have red tail hawks. We have
17 peregrine falcons. We have doves, woodpeckers. All of them use
18 our property. And, you know, I find it quite disappointing that
19 the information that the FERC requested is nowhere to be found
20 anywhere.

21 Point number two I want to make is about Tartar
22 Creek, where the project crosses at Mile Post -- what is it
23 here? -- 27.16 -- This is mile post up there (indicating). This
24 is the U.S. Department of the Army Corps of Engineers report
25 states in here that there is no impact on any Federally-listed

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

14

15

1 species and that they're going to use an open cut method to
2 cross Tartar Creek.

3 I have personally seen salmon spawning in Tartar
4 Creek. The ones I saw were silvers, but I do know that Tartar
5 Creek is tributary to California Creek, which has King salmon.
6 And I'm sure that if silvers spawn in that creek, that the King
7 salmon do.

15

8 Then I want to talk about this 500-foot buffer
9 zone for the utility corridor that the Whatcom County Planning
10 Department has imposed as part of this project. This 500-foot
11 buffer zone takes up all but three feet of a 5-acre parcel of
12 property. And yet, you know, Williams offered \$10,000 for their
13 impact on this piece of property. This piece of property, since
14 it's being zoned as a utility corridor by the County Council and
15 Planning Department, should be valued at industrial property
16 rates because it's being used for an industrial use. The
17 landowners can't benefit from this use. Only the pipeline
18 companies do. Yet the landowners are still paying the property
19 taxes on the pipeline right-of-ways. To me, that's wrong.

16

20 The book that you guys sent out, GSX says the
21 pipeline does not cross into any Urban Growth Area; but, yet, my
22 property is in the Birch Bay Urban Growth Area.

17

23 Then I want to move on to earthquake faults,
24 which only two of are identified in this book (indicating); but,
25 yet, the pipeline crosses 17 other earthquake faults along its

18

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 route to Vancouver Island underwater. Why are there no mention
2 of that in here (indicating)? They are identified in the
3 original EIS (indicating). And they should be addressed.

18
cont.

4 Let's see here. Now, I would like to speak a
5 little about the SE2 and the BP power projects.

6 When GSX first proposed, there was mention that
7 if SE-2 is proved, Georgia Strait Crossing will move their
8 pipeline 15 feet closer to SE-2 supply gas for SE-2; but, yet,
9 there is no Washington use of this gas according to GSX. And
10 same thing for BP Power. BP originally-- Their plan was to be
11 a Grand View Jackson Road for their power plant. It has now
12 been moved closer to a BP pipeline route and that is their plan.

19

13 Again, there's no Washington use according to GSX
14 for this pipeline. Hundred percent of it is supposed to go to
15 Vancouver Island. Anything that's not used on Vancouver Island
16 will be back-hauled through the pipeline, back into Canada,
17 headed east to the mountains, connects through another pipeline,
18 goes back down between - or Washington and Idaho area, into
19 Oregon, and then is piped back up through. And maybe Washington
20 residents will get some of that gas if there's any left.

21 Since Power X (phonetic) is not going forward and
22 they are the beneficiary of hundred percent of this pipeline,
23 according to GSX, and it's stated in the Environmental Impact
24 Statement that Power X is not going forward with their plant,
25 where is the use or the need for this pipeline?

20

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 And then I, you know, I was thinking, you know,
2 Terrill Creek (phonetic), which is another creek like, I don't
3 know, thousand yards from my house, they're starting restoration
4 projects, starting this month, for salmon enhancement to bring
5 back the runs of silvers and the chum. And, you know, that -
6 that pipeline is going to have an effect on those restoration
7 efforts. They can say they'll have no impact, but they'll have
8 an impact.

21

9 That's pretty much all I have to say about this
10 other than I'm opposed to this pipeline. They have badgered and
11 pushed people into accepting their low ball prices for the right
12 of ways they want. It happened to my mom. I heard it happen to
13 the last gentleman that spoke. And he was right. They need to
14 be run off the property and not be spoken to.

15 Thank you.

16 HEARING OFFICER: Thank you.

17 Dave Roberts.

18 DAVID ROBERTS: Dave Roberts.

19 Good evening. I'm David Roberts. I'm here
20 representing the Department of Natural Resources.

21 Washington State Department of Natural Resources
22 is responsible for the management of State-owned aquatic lands
23 and, specifically, the aquatic lands being proposed for the
24 Williams pipeline right of way.

25 DNR is in the process of establishing the Cherry

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 Point area as a State Aquatic Reserve. The objective of
2 establishing the aquatic reserve is to protect and support
3 unique aquatic systems and functions at the Cherry Point site.

4 DNR is presently initiating the development of a
5 Management Plan and Supplemental Environmental Impact Statement
6 through the State of Washington's Environmental Policy Act for
7 the proposed Cherry Point Aquatic Reserve.

8 The DNR's interim policy for areas being proposed
9 as aquatic reserves requires that future leasing activities that
10 will be authorized or prohibited within the aquatic reserves
11 will be established after the area is formally designated as
12 aquatic reserve and the site-specific Management Plan has been
13 adopted.

14 The Management Plan, along with the Supplemental
15 Environmental Impact Statement, are scheduled for completion in
16 April, 2004. At that time DNR will determine if the proposed
17 GSX pipeline can or should be sited within the Cherry Point
18 Aquatic Reserve and, if appropriate, the conditions for allowing
19 its use.

20 DNR finds the proposal acceptable at this time
21 only if the pipeline can be placed under the reserve so as not
22 to disturb the habitat and thus surface outside of the reserve.

23 If the pipeline cannot be placed under the
24 reserve, decisions regarding its placement on the bottom within
25 the reserve will be included in the Management Plan.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1 We request for consideration of DNR's interim
2 guidance for the site and the conditions to be established in
3 the Cherry Point Management Plan when reviewing the Williams gas
4 line proposal.

5 DNR's SEPA schedule for meetings regarding Cherry
6 Point are as follows: October 22nd, 2003 will be a Scoping
7 Meeting. January 15th, 2004 we'll have a Public Meeting, if
8 necessary, to review the Draft SEIS. The full Public Hearing
9 for the Draft EIS and SEIS, Management Plan, boundaries and
10 Public Benefit Analysis will be on January 26, 2004.

11 We welcome public comment through the SEPA
12 process on the Cherry Point reserve and its Management Plan.
13 Those who have questions regarding the process and the
14 Management Plan are requested to contact Dave Palazzi, that's
15 P-A-L-A-Z-Z-I, our Aquatic Reserves Manager at (360)902-1069.

16 Thank you very much.

17 THE COURT: Thank you.

18 HEARING OFFICER: Okay. At this time there is no
19 one else who has indicated they would like to provide testimony.
20 So I'm going to ask if there's anybody who has heard testimony
21 here and has decided maybe there's some things that they would
22 like to have put on the public record at this time?

23 No?

24 Okay. All the testimony that was presented at
25 this hearing, as well as the hearing that we held last night in

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

22
cont.

1 Friday Harbor, excuse me, as well as any written comments that
2 have been received are part of the official record for this
3 proposal and will receive equal weight in the decision-making
4 process.

5 Written comments should postmarked, faxed or
6 e-mailed by October 25th, 2003 and they should go to Shiela
7 Hosner. The last name is spelled H-O-S-N-E-R. The address is
8 the Department of Ecology, 3190 - 160th Avenue Southeast,
9 Bellevue, Washington 98008-5452.

10 Sheila's fax number is area code (425)649-7098.

11 Her e-mail address is -- And this is not case
12 sensitive -- shos461@ecy.wa.gov.

13 All oral and written comments that are received
14 during the Public Comment period will be responded to in a
15 document called a Response to Comment Summary that will state
16 the Department of Ecology's official position on the issues and
17 concerns that were raised during this Public Comment period.

18 It will automatically be mailed out to everyone
19 who provided oral or written comments. It is my understanding
20 that the Department of Ecology is expecting to make some kind of
21 decision regarding the Final Supplemental Environmental Impact
22 Statement by Thanksgiving.

23 On behalf of the Department of Ecology, thank you
24 for attending our Public Hearing. We appreciate your time, your
25 comments.

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

And this hearing is adjourned at 7:39. Thank

you.

(Whereupon, the Public Hearing was adjourned.)

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

REPORTER'S CERTIFICATE

I, KAREN P. SHIPLEY, CSR No. 2051, Certified
Shorthand Reporter, certify;

That the foregoing proceedings were taken
before me at the time and place therein set forth, at which
time;

That the testimony of the citizens
were recorded stenographically by me and were
thereafter transcribed;

That the foregoing is a true and correct
transcript of my shorthand notes so taken to be best of my
ability to hear and discern.

I further certify that I am not a relative
or employee of any attorney of the parties, nor financially
interested in the action.

I declare under penalty of perjury under the
laws of Washington that the foregoing is true and correct.

Dated this 27th day of October, 2003.

KAREN P. SHIPLEY, CSR No. 2051
360-679-8493
1204 Hersig Road
Oak Harbor, Washington 98277

KAREN P. SHIPLEY, CSR No. 2051 - 360-679-8493

CHAPTER 4: RESPONSES TO COMMENTS

Comment Number	Last Name	First Name	Affiliation
INDIVIDUALS			
IND-1	Askew	Budd	
IND-2	Bell	Alan	
IND-3	Bell	Kelly	
IND-4	Cleveland	Cathy	
IND-5	Friedlob	Alan	
IND-6	Glenman	Darrell	
IND-7	Hoopes	David	
IND-8	Kyte	Michael	
IND-9	McLennan	Mairi	
IND-10	Mills	Claudia	
IND-11	Seigman	David	
IND-12	Stargell	Aubrey	
ORGANIZATIONS			
ORG-1	Buffum	Stephanie	Friends of the San Juans
ORG-2	Hackney	Thomas	GSX Concerned Citizens
ORG-3	Ortman	David	Wise Use Movement
ORG-4	Sato	Mike	People for Puget Sound
ORG-5	Scott	Gordon	Whatcom Land Trust
ORG-6	Steffensen	Wendy	RE Sources
ORG-7	Willows	Dennis	SJC Marine Resources Committee
STATE AGENCIES			
SA-1	Dohrmann	John	Puget Sound WQ Action
SA-2	Flores	Hugo	DNR
LOCAL AGENCIES			
LA-1	Kremen	Pete	Whatcom County Executive
LA-2	Randles	James	Northwest Air Pollution Authority
LA-3	Shaw	Francine	San Juan County Planning
FEDERAL AGENCIES			
FA-1	Norberg	Brent	NMFS, Northwest Region
PROJECT APPLICANT			
AP-1	Powell	Tim	Williams Pipeline Company
PUBLIC HEARINGS			
PH-1	Friday Harbor, Washington		10/14/03
PH-2	Bellingham, Washington		10/15/03

Chapter 5

References

5. REFERENCES

Cited References

[BP West Coast Products, LLC. April 2003. BP Cherry Point Cogeneration Project Application for Site Certification.](#)

[Birch, R., R. Glaholt, and D. Lemon. 2000. Noise Measurement Near an Underwater Gas Pipeline at Secret Cove, British Columbia. Prepared for Georgia Strait Crossing Pipeline Limited. Prepared by ASL Environmental Sciences, Inc., Sidney BC, Canada and TERA Environmental Consultants \(Alta.\) Ltd., Calgary Canada.](#)

British Columbia Utilities Commission (BCUC). September 8, 2003. In the Matter of Vancouver Island Energy Corporation (A Wholly Owned Subsidiary of British Columbia Hydro and Power Authority) Vancouver Island Generation Project Application for a Certificate of Public Convenience and Necessity.

Duke/Fluor Daniel. 2001. Engineering Contractor for the Cherry Point Cogeneration Project. Quoted in BP West Coast Products LLC. June 2002 (including April 2003 revisions). BP Cherry Point Cogeneration Project, Application for Site Certification. Prepared by Golder Associates, Inc. for the Energy Facility Site Evaluation Council. Olympia, Wash.

Easterbrook, D. J., D. C. Engebretson, and D. J. Kovanen. 2000. Potential Seismic Hazards of the Sumas and Vedder Mountain Faults. <http://se2-gasp.org/seismic/svgraben.html>.

Federal Energy Regulatory Commission. July 2002. Final Environmental Impact Statement, Georgia Strait Crossing Project, Georgia Strait Crossing Pipeline LP, Docket Nos. CP01-176-000 and CP01-179-000.

[Georgia Strait Crossing Pipeline LP. 2003. Wetland and Riparian Restoration Plan.](#)

Georgia Strait Crossing Pipeline Limited. April 2001. Application for Certificate of Public Conveyance and Necessity to the National Energy Board of Canada.

[Glaholt, R. 2000. Report on the nature and possible significance of pipeline construction and operational noise on marine ecosystems. Unpublished report prepared by Tera Environmental Consultants, Ltd. for Georgia Strait Crossing Pipeline Limited. 15 pp.](#)

Hess, Sean C. and Gail Thompson. 2000. Cultural Resource Inventory and Evaluation Plan for Williams Gas Pipeline-West Georgia Strait Crossing Natural Gas Pipeline Project, Whatcom and San Juan Counties, Washington. Prepared for Williams Gas Pipeline-West by Historical Research Associates, Inc. On file, State Office of Archaeology and Historic Preservation, Lacey, Wash.

Hess, Sean, John Zachman, and Gail Thompson. 2000. Cultural resources survey for Williams/BC Hydro Georgia Strait crossing project, Whatcom County, Washington. Report prepared for Williams, Salt Lake City, Utah.

[Hoover & Keith, Inc. 2003. GSX Canada Pipeline Project – Results of a supplemental analysis of the potential noise of the underwater pipeline associated with the GSX Project. Unpublished report prepared for Georgia Strait Crossing, L.P. 27 pp.](#)

Jacques Whitford and Associates Limited. 2002. Offshore Geotechnical Investigation Georgia Strait Crossing Cherry Point, WA to Manley Creek, BC. In the Application to the National Energy Board Supplemental-2 Information, December 2002. 11 map sheets, scale: 1:20,000. Prepared for Georgia Strait Crossing Pipeline Limited.

[Kitech, Paul D. P.E. February 2003. GSX Canada Pipeline Project: Results of a Supplemental Acoustical Analysis of the Potential Noise of the Underwater Pipeline Associated with the GSX Project. Hoover & Keith, Inc.](#)

[Marko, J. R. February 2003. Consideration of Evidence for Noise Generation by Underwater Gas Pipelines and Presentation of Laboratory Data Relevant to the Acoustic Insulation Properties of Concrete Pipeline Cladding. ASL Environmental Sciences, Inc.](#)

National Energy Board of Canada, Joint Review Panel. July 2003. Joint Panel Review Report – GSX Canada Pipeline Project.

Norske Skog Canada Limited (NorskeCanada). May 2003. Evidence of Norske Skog Canada Limited for the BCUC Hearing on the Application by Vancouver Island Energy Corporation for a Certificate of Public Convenience and Necessity.

[Potter, J. 2000. Initial observations on the acoustic source levels to be expected and some possible environmental impacts of a proposed gas pipeline. Unpublished report prepared by Dr. John Potter, Head, Acoustic Research Laboratory, Tropical Marine Science Department, University of Singapore. December 28, 2000.](#)

Richardson, W. J., C. R. Greene, Jr., C. I. Malme and D. H. Thomson. 1995. Marine Mammals and Noise. Academic Press, San Diego, CA. 576 pp.

[San Juan County 2002. Comprehensive Plan, Section B, Element 3, Shoreline Master Program.](#)

[San Juan County 2003. Unified Development Code, Chapter 18.30, Land Use Districts.](#)
~~[San Juan County. 1998. San Juan County Comprehensive Plan. Friday Harbor, Wash.](#)~~

~~[San Juan Island. 2000. Chamber of Commerce URL: <http://www.sanjuanisland.org> \(visited August 2003\).](#)~~

Singleton Associated Engineering, Ltd. April 12, 2002. Natural Gas Supply Alternatives to Vancouver Island; Hydraulic Analyses and Capital Cost Comparisons.

- Terasen Gas Vancouver Island. May 2003. Evidence in Response to Application by Vancouver Island Energy Corporation for a Certificate of Public Convenience and Necessity.
- Terra Remote Sensing Inc. 2001. Marine reflection seismic survey to investigate potential geological hazards along the proposed route. Prepared for Georgia Strait Crossing Pipeline Limited. Tech. Rep. 72-445/462.
- Terzaghi, K. 1936. Failure of Bridge Piers due to Scour. Proc. 1st International Conf. Soil Mechanics and Foundation Engineering, Vol. II. Harvard.
- U.S. Fish and Wildlife Service (USFWS). June 25, 2002. Letter from K. S. Berg (Manager, Western Washington Fish and Wildlife Office) to M. R. Salas (Federal Energy Regulatory Commission).
- Valdemarsen J. W. 1993. Trawling over 40" Rorledning Virkninger pa Tralredskap. Fisken og Havet. No. 11. In the Strategic Environmental Assessment 3 Assessment Document. URL: http://www.offshore-sea.org.uk/sea/dev/html_file/sea3_doc1.cgi?index=c (visited 2003).
- Vandersypen, Rodney. June 19, 2003. County Traffic Engineer, Whatcom County. Personal communication with Jennifer Lee of Natural Resource Group.
- [Washington State Department of Ecology. 2003. Website
http://www.ecy.wa.gov/services/gis/maps/wria/303d/w1a-303d.pdf.](http://www.ecy.wa.gov/services/gis/maps/wria/303d/w1a-303d.pdf)
- Whatcom County. 1997. Whatcom County Comprehensive Plan. Bellingham, Wash.
- Whatcom County. ~~1998~~2003. ~~Whatcom County~~ [Title 23, Whatcom County Code](#), Shoreline Management ~~Plan~~[Program](#). Bellingham, Wash.
- Whitlam, Robert G. November 22, 2000. Washington State Archaeologist. Letter to Kirt W. Rhoads, Williams.
- Whitlam, Robert G. August 11, 2003. Washington State Archaeologist, Personal communication.
- Williams Pipeline Company. May 2001. Exhibit F-1, Environmental Report Resource Reports 1-11, Georgia Strait Crossing Project.
- Williams Pipeline Company. July 2003. Supplemental Traffic Information for the Georgia Strait Crossing Project.
- Zachman, John, Alex Maass, and Gail Thompson. 2000. Supplemental cultural resources survey and archaeological testing for Williams/BC Hydro Georgia Strait crossing project, Whatcom County, Washington. Report prepared for Williams, Salt Lake City, Utah.

Additional References

Bellingham/Whatcom County Convention and Visitors Bureau. URL:
<http://www.bellingham.org> (visited 2003).

Bisson, P. A, and R. E. Bilby. 1982. Avoidance of Suspended Sediment by Juvenile Coho Salmon. *North American Journal of Fisheries Management* 4:371-374.

Blais, D. P., and D. L. Simpson. 1997. The effects of a buried natural gas pipeline on water quality, stream habitat, and biotic populations within high quality cold water streams in upstate New York. In *Sixth International Symposium on Environmental Concerns in Rights-of-Way Management*. Eds. J. R. Williams, J. W. Goodrich-Mahoney, J. R. Wisniewski, and J. Wisniewski. February 24-26, 1997. New Orleans, Louisiana. Elsevier Publishers, New York, New York.

Cyrus, D. P., and S. J. M. Blaber. 1987b. The Influence of Turbidity on Juvenile Marine Fishes in Estuaries. Part 2: Laboratory Studies, Comparisons with Field Data and Conclusions. *Journal of Experimental Marine Biology and Ecology* 109:71-91.

Data Book. 1999. San Juan County Profile. URL:
<http://www.ofm.wa.gov/databook/county/sanj.htm>.

Data Book. 1999. Whatcom County Profile. URL:
<http://www.ofm.wa.gov/databook/county/what.htm>.

DTI Oil and Gas Environmental Consultation Site. 2003. Strategic Environmental Assessment 3 Assessment Document. United Kingdom. URL: http://www.offshore-sea.org.uk/sea/dev/html_file/sea3_doc1.cgi?index=c.

Fairbanks, C. and M. Terra. 2000. Georgia Strait Crossing Project nearshore marine habitat survey and review of existing information of marine biology and fisheries resources. Tech. rep. by Duke Engineering & Services for WESTECH Environmental Services, Inc.

Kitech, Paul D. P.E. February 2003. GSX Canada Pipeline Project: Results of a Supplemental Acoustical Analysis of the Potential Noise of the Underwater Pipeline Associated with the GSX Project. Hoover & Keith, Inc.

McDaniel, N.G. and R. Glaholt. 2002. Surveys of subtidal benthic biodiversity and associated habitats along the proposed Georgia Strait Crossing pipeline route. Tech. rep. by TERA Environmental Consultants for Georgia Strait Crossing Pipeline Ltd.

San Juan Island Chamber of Commerce. 2000. URL: <http://www.sanjuanisland.org>.

Servizi, J. A. 1988. Sublethal Effects of Dredged Sediments on Juvenile Salmon. Pages 57-63 in C.A. Simenstad, editor. *Effects of Dredging on Anadromous Pacific Coast Fishes*. University of Washington, Seattle.

TERA Environmental Consultants, Ltd. 2000. Environmental and socio-economic impact assessment for the Georgia Strait Crossing Project. Prepared for Georgia Strait Crossing Pipeline Limited, Vancouver, British Columbia.

U.S. Census Bureau Department of Commerce. 2000. General Population and Housing Characteristics: 1990. URL: <http://www.factfinder.census.gov>.

U.S. Census Bureau Department of Commerce. 2000. Occupancy, Tenure, and Age of Householder: 1990. URL: <http://www.factfinder.census.gov>.

Vincour, W. S. and J. P. Shubert. 1987. Effects of gas pipeline construction on the aquatic ecosystem of Canada Creek, Presque Isle County, Michigan. Gas Research Institute Report GRI-87/0027.

Washington State Employment Security Department. 1999. San Juan County Profile. Labor Market and Economic Branch Report. URL: <http://www.wa.gov/esd/lmea>.

Whitman, R. P., T. P. Quinn, and E. L. Brannon. 1982. Influence of Suspended Volcanic Ash on Homing Behavior of Adult Chinook Salmon. Transactions of the American Fisheries Society 111:63-69.

Chapter 6

Acronyms and Abbreviations

6. ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effect
BC Hydro	British Columbia Hydro and Power Authority
Bcf	billion standard cubic feet
BCUC	British Columbia Utilities Commission
BMPs	Best Management Practices
<u>BP</u>	<u>British Petroleum</u>
<u>CEA</u>	<u>Canadian Environmental Assessment</u>
<u>CFR</u>	<u>Code of Federal Regulations</u>
<u>CFT</u>	<u>Call for Tenders</u>
<u>CPCN</u>	<u>Certificate of Public Convenience and Necessity</u>
<u>CMPU</u>	<u>Cherry Point Management Unit</u>
CTMP	Construction Transportation Management Plan
CZM	Coastal Zone Management
<u>CZMA</u>	<u>Coastal Zone Management Act</u>
dB	decibels
DLN	dry low nitrogen
<u>DOT</u>	<u>U.S. Department of Transportation</u>
Ecology	Washington Department of Ecology
EIS	Environmental Impact Statement
EPR	Emergency Preparedness and Response Program
ESEIA	Environmental and Socioeconomic Assessment
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
GMA	Growth Management Act
gpm	gallons per minute
GSX	Georgia Strait Crossing
GSX-Canada	Georgia Strait Crossing Pipeline Limited
GSX-US	Georgia Strait Crossing Pipeline LP
HDD	horizontal directional drill
IAP	Integrity Assessment Program
<u>JRP</u>	<u>Joint Review Panel</u>
LNG	liquid natural gas
LOSs	levels-of-service

MLLW	mean lower low water
MOUs	Memoranda of Understanding
MP	milepost
mph	miles per hour
MW	megawatts
NEB	National Energy Board of Canada
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWAPA	Northwest Air Pollution Authority
OAHP	Office of Archaeology and Historic Preservation
OHWM	ordinary high water mark
OPS	Office of Pipeline Safety
PSD	Prevention of Significant Deterioration
ROW	right-of-way
SCADA	supervisory control and data acquisition
SEIS	Supplemental Environmental Impact Statement
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SPCC	Spill Prevention Control and Countermeasures
TGVI	Terasen Gas Vancouver Island, Inc.
TMP	thermomechanical pulp
tpy	tons per year
UGAs	Urban Growth Areas
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VIEC	Vancouver Island Energy Corporation
VIGP	Vancouver Island Generation Project
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources

WRIA
WUTC

Water Resource Inventory Area
Washington Utilities and Transportation Commission

Chapter 7

Distribution List

7. DISTRIBUTION LIST

Federal Agencies

Bonneville Power Administration
Federal Energy Regulatory Commission
National Park Service
NOAA Fisheries
U.S. Army Corps of Engineers, Seattle District
U.S. Department of Agriculture, Forest Service
U.S. Department of Agriculture, Resources Conservation Service
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service

Tribal and First Nations

Lummi Nation
Nooksack Tribe
Sencot'en Alliance
Tulalip Tribes

Canadian Governments and Agencies

British Columbia Ministry of Attorney General
British Columbia Ministry of Water Land and Air Protection
British Columbia Utilities Commission
Environment Canada Pacific and Yukon Region
Fraser Valley Regional District
Greater Vancouver Regional District
Health Canada - BC/Yukon Region
National Energy Board

State Agencies and Elected Officials

Department of Community, Trade and Economic Development
Department of Ecology – SEPA Unit
Department of Ecology NWRO
Department of Fish and Wildlife
Department of Health
Department of Natural Resources
Department of Transportation
Energy Facility Site Evaluation Council
Energy Facility Site Evaluation Council, Counsel for the Environment
Representative Dave Quall
Representative Doug Erickson
Representative Jeff Morris

Representative Kelli Linville
Senator Dale Brandland
Senator Harriet Spanel
Washington Utilities and Transportation Commission

Local Agencies

City of Bellingham
City of Blaine
Northwest Air Pollution Authority
Port of Bellingham
San Juan County
Whatcom County Council
Whatcom County Department of Emergency Management
Whatcom County Executive
Whatcom County Fire District No. 7
Whatcom County Marine Resources Committee
Whatcom County Planning and Development Services
Whatcom County Prosecutors Office
Whatcom Public Utility District No 1

Libraries

Bellingham Library
Ocean Park Library
San Juan County Library
Washington State Library
Whatcom County Library
White Rock Public Library

Organizations and Individuals

BP Cherry Point Refinery
Fuel Safe Washington
GSX Concerned Citizens Coalition
Nanaimo Newcastle Neighbours Ratepayers Association
People for Puget Sound
Puget Sound Crabbers Association
RE Sources
REBOUND
Safe Bellingham
Seigman Family Trust

Askew, Budd
Barnes, Darrel J.
Bell, Alan

Bell, Kelly
Bronkeman, Terry
Bumford, Robert L.
Determan, Dave
Dobyns, Doug
Fearon, Gerry
George, Ray
Gilda, Richard
Helgath, Dr. Sheila F.
Hoag, Connie
Johannessen, Jim
Johnson, Jennifer
Kaufman, Michael
Klinger, Terrie
Littrell, Don
Lynch, Willy
Lyon, Bonnie
McDonald, Aimee
Mendelsohn, Dave
Neilsen, Don
Reed, Marianne
Tromburg, Loni

Appendix

FERC Environmental Conditions

Appendix

Environmental Conditions

1. Georgia Strait Pipeline Crossing LP (Georgia Strait) shall follow the construction procedures and mitigation measures described in its application, its supplemental filings, and as identified in the environmental impact statement (EIS), unless modified by this Order. Georgia Strait must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific *conditions*;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification**.

2. The Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of this Order; and
 - b. the design and implementation of any additional measures deemed necessary (including stop work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project construction and operation.

3. **Prior to any construction**, Georgia Strait shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors, and contractor personnel will be informed of the environmental inspector's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets, and shall include the staff's recommended facility locations. **As soon as they are available, and before the start of construction**, Georgia Strait shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by this Order. All requests

for modifications of environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Georgia Strait's exercise of eminent domain authority granted under Natural Gas Act (NGA) section 7(h) in any condemnation proceedings related to this Order must be consistent with these authorized facilities and locations. Georgia Strait's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Georgia Strait shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that will be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, and documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction** in or near that area.

This requirement does not apply to route variations recommended herein or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
- b. implementation of endangered, threatened, or special concern species mitigation measures;
- c. recommendations by state regulatory authorities; and
- d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of this Certificate, and before construction begins,** Georgia Strait shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Georgia Strait will implement the mitigation measures required by this Order. Georgia Strait must file revisions to the plan as schedules change. The plan shall identify:
- a. how Georgia Strait will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - b. the number of environmental inspectors assigned per spread, and how the company would ensure that sufficient personnel are available to implement the environmental mitigation;
 - c. company personnel, including environmental inspectors and contractors, who will receive copies of the appropriate material;
 - d. what training and instructions Georgia Strait will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
 - e. the company personnel (if known) and specific portion of Georgia Strait's organization having responsibility for compliance;
 - f. the procedures (including use of contract penalties) Georgia Strait will follow if noncompliance occurs; and
 - g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the mitigation training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. Georgia Strait shall employ a team of environmental inspectors per construction spread. The environmental inspectors shall be:

- a. responsible for monitoring and ensuring compliance with all environmental mitigative measures required by this Order, Georgia Strait's Upland Erosion Control, Revegetation and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures), and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see recommendation 6 above) and any other authorizing documents;
 - c. empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;
 - d. a full-time position separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
8. Georgia Strait shall file updated status reports with the Secretary on a **weekly** basis **until** all construction-related activities, including restoration and initial permanent seeding, are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - b. a listing of all problems encountered and each instance of noncompliance observed by the environmental inspectors during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - c. corrective actions implemented in response to all instances of noncompliance, and their cost;
 - d. the effectiveness of all corrective actions implemented;
 - e. a description of any landowner/resident complaints which may relate to compliance with the requirements of this Order, and the measures taken to satisfy their concerns; and

- f. copies of any correspondence received by Georgia Strait from other federal, state or local permitting agencies concerning instances of noncompliance, and Georgia Strait's response.
9. Georgia Strait must receive written authorization from the Director of OEP **before commencing service** from the project. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way is proceeding satisfactorily.
10. **Within 30 days of placing the certificated facilities in service**, Georgia Strait shall file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the certificate conditions Georgia Strait has complied with or will comply with. This statement shall also identify any areas along the right-of-way where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
11. Georgia Strait shall offer to conduct pre-construction well analyses to acquire baseline information about water quality and well function to those landowners with wells located within 150 feet of the construction right-of-way. This information will form the basis for post-construction monitoring efforts if problems are identified following construction. Georgia Strait shall document any complaints that were received concerning well function or water quality and describe how each was resolved in its weekly status reports to the Commission.
12. Georgia Strait shall not implement the open-cut method as an alternative to the proposed horizontal directional drill (HDD) or conventional bore methods **until**:
 - a. Georgia Strait files with the Secretary the specific reasons that the HDD or conventional bore method is not feasible or was not successful;
 - b. FERC staff concludes formal consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) regarding adverse impacts on federally listed species, if necessary;
 - c. Georgia Strait consults with the U.S. Army Corps of Engineers (COE) and the Washington Department of Ecology (WDOE), the NMFS, the FWS, and the Washington Department of Fish and Wildlife (WDFW) and files a detailed

site-specific, open-cut crossing plan including scaled drawings identifying all areas that would be disturbed by constructing the open-cut crossing and mitigation measures that would minimize the extent and duration of disturbance on the waterbody and associated riparian habitat;

- d. for Fishtrap Creek and Bertrand Creek, Georgia Strait shall develop a protocol in consultation with the WDOE and the WDFW to determine if contaminated sediments are present in the construction right-of-way and to develop measures to minimize the resuspension of contaminated sediments (if present) for the crossings; and
 - e. Georgia Strait has received written notification from the Director of OEP that an open-cut crossing may begin.
13. Georgia Strait shall prepare an explanation of the site-specific conditions at each crossing that preclude the use of the dry-ditch method where the wet-ditch method is proposed. This explanation and the results of consultations with the WDFW, the FWS, the NMFS, and other appropriate agencies regarding the crossing method shall be filed with the Secretary for review and approval by the Director of OEP **prior to construction**.
14. Georgia Strait clearing crews shall avoid crossing equipment through perennial waterbodies in the project area, unless otherwise approved by the Director of OEP in Georgia Strait's initial implementation plan.
15. Georgia Strait, in consultation with the WDFW, the FWS, and the NMFS, shall design and locate the hydrostatic test water intake structure in the Strait of Georgia in a manner that avoids impingement of fish and damage to nearshore marine vegetation. The design and location of the intake structure, shall be filed with the Secretary for review and written approval by the Director of OEP **prior to construction**. Georgia Strait shall also file the results of as well as the results of the related consultations with the WDFW, the FWS, and the NMFS.
16. Georgia Strait shall file revised Procedures incorporating the FERC-approved variance requests in tables 3.3.2-2 and 3.4.2-1 of the EIS with the Secretary **prior to construction**.
17. Georgia Strait shall file with the Secretary a site-specific plan for use of the HDD method at the Cherry Point landfall for review and approval by the Director of OEP **prior to construction**. The plan should identify additional containment systems (e.g., booms and seafloor control devices) that would be used to minimize the potential for mud releases beyond the limits of the glory hole. Additionally, the plan should specify that density adjustments to the drilling mud would only be made through the use of additional dry mud compound, cement, cottonseed hulls, or other inert materials (i.e., no chemical weighting or thickening agents would be used).

18. Georgia Strait shall limit the Gulf Road pipestring fabrication area to the existing cleared opening (Georgia Strait proposed HDD Make-up Site #1), which is west of Gulf Road. Additionally, Georgia Strait shall limit the fabrication and stringing activities to the existing cleared road right-of-way and avoid clearing trees adjacent to Gulf Road unless necessary to create a safe work area.
19. Georgia Strait shall file with the Secretary for review and written approval of the Director of OEP **prior to construction**, a wetland restoration plan, prepared in coordination with the COE, the WDOE, and the WDFW, that includes detailed construction and restoration measures to minimize forested wetland impacts and addresses the need to actively revegetate wetlands. Georgia Strait shall file with the Secretary annual summary reports that compare pre- and post-construction wetland vegetation. Post-construction reports shall be filed for the first three years or **until** each wetland is successfully revegetated. The reports shall include an inventory of exotic nuisance plant species present on the construction right-of-way. For any wetlands that have not been restored by the third growing season, Georgia Strait shall file with the Secretary a site-specific plan to rectify these problem areas for review and written approval by the Director of OEP.
20. **Prior to implementing** an open cut crossing at the Cherry Point landfall, Georgia Strait shall consult with, and obtain necessary approvals from, the appropriate agencies, including the Washington Department of Natural Resources (WDNR), the WDFW, the WDOE, the NMFS, and the COE. Georgia Strait shall develop a plan to avoid or minimize impacts on sensitive resources and mitigate any loss of marine vegetation. The plan shall, at a minimum, quantify the amount of marine vegetation that would be impacted; provide scaled drawings that identify construction methods; and describe any compensatory mitigation that would be implemented during or after construction. Georgia Strait shall submit the plan to the Secretary for review and written approval by the Director of OEP **prior to implementation**.
21. Georgia Strait shall conduct post-construction surveys to quantify the impact of drilling mud on marine vegetation and prepare a plan in consultation with the WDNR, the WDFW, the NMFS, and other applicable agencies to mitigate observed impacts. Georgia Strait shall file the mitigation plan along with survey results with the Secretary for review and written approval by the Director of OEP **prior to implementation**.
22. Georgia Strait shall develop a plan in consultation with the FWS and the NMFS to gather data on sound emitted from the offshore pipeline at normal operating pressures. This data shall establish the level of sound emitted from the pipeline in relation to ambient noise levels in the southern Strait of Georgia and the distance this sound is propagated in the water column. This plan shall be filed with the Secretary for review and written approval by the Director of OEP **prior to construction**. A report presenting the data collected, as part of this survey, shall be filed with the Secretary within 90 days of the completion of the survey.

23. Prior to construction, Georgia Strait shall consult with the WDFW and the NMFS to develop a detailed fish salvage and relocation plan that describes the techniques and equipment that would be used to remove fish that become stranded within the right-of-way at waterbody crossing areas. This plan shall be filed with the Secretary for review and written approval by the Director of OEP **prior to construction**.
24. Georgia Strait shall prepare a site-specific plan for launching the HDD pipestring in consultation with the FWS, NMFS, WDFW and other applicable agencies. This plan shall include specific measures that Georgia Strait would implement to mitigate impacts on marine vegetation and beach/intertidal habitats. These measures could include, but are not limited to: restricting heavy equipment activity on the beach, use of matting or pads to prevent rutting and compaction, restoration of disturbed cobble substrates, and restricting heavy work vessels to areas beyond the marine vegetation zone. Georgia Strait shall file the plan with the Secretary for review and written approval by the Director of OEP **prior to construction**.
25. Georgia Strait shall consult with the Natural Resources Conservation Service and the Whatcom County Conservation Districts regarding future stream restoration projects involving channel relocation. Georgia Strait shall file the results of these consultations and any revised construction plans to avoid interfering with planned restoration projects with the FERC **prior to construction**.
26. Georgia Strait shall not begin construction activities **until**:
 - a. Georgia Strait conducts a survey of suitable bald eagle habitat to identify nests or roosts that are within 0.5 of a mile of areas that would be disturbed by construction activities (these surveys shall follow a protocol approved by the FWS and the WDFW);
 - b. Georgia Strait, in consultation with the FWS and the WDFW, develops a management plan for each active bald eagle nest or communal roost within 0.5 of a mile of the project area; and
 - c. Georgia Strait files with the Secretary a report of the results of the bald eagle survey(s), any necessary site management plans, and documentation that the FWS and the WDFW have reviewed and approved the survey results and any necessary mitigation plans. The survey report shall include the name(s) and qualifications of the person(s) conducting the survey, method(s) used to conduct the survey, date(s) of the survey, and areas surveyed (including the mileposts or a map of the area surveyed).
27. Georgia Strait shall follow the WDFW's recommended guidelines of avoiding construction disturbances within 3,280 feet of heron rookeries between February 15 and July 31 unless

Georgia Strait files with the FERC documentation that the WDFW has waived the timing restriction.

28. Georgia Strait shall develop and implement an environmental complaint resolution procedure. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the project and restoration of the right-of-way. Prior to construction, Georgia Strait shall mail the complaint procedures to each landowner whose property would be crossed by the project. In its letter to affected landowners, Georgia Strait shall:
 - a. provide a local contact that the landowners should call first with their concerns; the letter shall indicate how soon a landowner shall expect a response;
 - b. instruct the landowners that, if they are not satisfied with the response, they shall call Georgia Strait's Hotline; the letter shall indicate how soon to expect a response; and
 - c. instruct the landowners that, if they are still not satisfied with the response from Georgia Strait's Hotline, they shall contact the Commission's Enforcement Hotline at (877) 303-4340.

In addition, Georgia Strait shall include in its weekly status report a copy of a table that contains the following information for each problem/concern:

- a. the date of the call;
 - b. the identification number from the certificated alignment sheets of the affected property;
 - c. the description of the problem/concern; and
 - d. an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.
29. Georgia Strait shall file documentation from the WDOE for its Certification of Consistency with the Washington Coastal Zone Management Plan with the Secretary **prior to construction.**
 30. Georgia Strait shall defer construction of facilities and use of all staging, storage, or temporary work areas and new or to-be-improved access roads **until** Georgia Strait files with the Secretary reports, plans, and related State Historic Preservation Officer comments; and the Director of OEP reviews and approves all cultural resources reports and plans, and notifies Georgia Strait in writing that construction may proceed.

All material filed with the FERC containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein

clearly labeled in bold lettering: “**CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE.**”

31. Georgia Strait shall conduct a noise survey to verify that the noise from the Cherry Point Compressor Station operated at full load does not exceed a day-night equivalent sound level (L_{dn}) of 55 decibels of the A-weighted scale (dBA) at any noise-sensitive areas (NSA), and file the results of the noise survey with the Secretary **no later than 60 days** after placing the compressor station in service. If the noise attributable to the operation of the compressor station at full load exceeds an L_{dn} of 55 dBA at any nearby NSAs, Georgia Strait shall file a report on what changes are needed and shall install additional noise controls to meet that level **within 1 year of the in-service date**. Georgia Strait shall confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days** after the additional noise controls are installed.
32. Georgia Strait shall conduct a noise survey to verify that the noise from the meter facilities does not exceed an L_{dn} of 55 dBA at any NSAs, and file the results of the noise survey with the Secretary **no later than 60 days** after placing the meter facilities in service. If the noise attributable to the operation of the meter facilities exceeds an L_{dn} of 55 dBA at any nearby NSAs, Georgia Strait shall file a report on what changes are needed and shall install additional noise controls to meet that level **within 1 year of the in-service date**. Georgia Strait shall confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days** after the additional noise controls are installed.
33. Georgia Strait shall adopt the following route variations:
 - a. the I-5 Variation;
 - b. the Percie Road Variation; and
 - c. the Trillium Variation.
34. Georgia Strait shall adopt alternative site B for the Cherry Point Compressor Station as described in its October 11, 2001 application amendment